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GOLDSMITH, AND HIS BIOGRAPHERS.*

BY FREDERICK LAWRENCE.

Of all the laborers in our literary vineyard there is scarcely one whose name has a more familiar, household sound than that of Oliver Goldsmith. There is assuredly no writer of the last century for whom we entertain a stronger feeling of personal regard. His character is endeared to us as much by its innate goodness as by its amiable weakness. "The epithet," says Washington Irving, "so often heard, and in such kindly tones, of 'Poor Goldsmith!' speaks volumes. Few, who consider the real compound of admirable and whimsical qualities which form his character, would wish to prune away its eccentricities, trim its grotesque luxuriance, and clip it down to the decent formalities of rigid virtue. 'Let not his frailties be remembered,' said Johnson, 'he was a very great man.' But, for our part, we rather say, 'Let them be remembered,' since their tendency is to endear; and we question whether he himself would not feel gratified in hearing his reader, after dwelling with admiration on the proofs of his greatness, close the volume with the kind-hearted phrase, so fondly and familiarly ejaculated, of 'Poor Goldsmith!'"

We are pleased to number the author of "Bracebridge Hall," and the "Sketch Book," among the biographers of Goldsmith. No man has shown a more lively appreciation or a more exquisite sense of the peaceful virtues and peculiar attractions of English domestic life than the gifted American; and we must add that no modern writer of English prosé has more closely resembled the author of the "Vicar of Wakefield," as well in his clear, lucid, and flowing style, as in the genial, gentle, and loving thoughts scattered through his pages. In the preface to the present biography, Mr. Irving has gracefully acknowledged his obligations to Goldsmith, and his early predilections for his writings, by addressing to him Dante's apostrophe to Virgil:—

Tu se' lo mio maestro, e'l mio autore;
Tu se' solo colui, da' cu' io tolsi
Lo bello stile, che m' ha fatto onore.

Mr. Forster's spirited and eloquent sketch, though deformed by certain mannerisms, or rather Carlyisms, which we would rather have seen avoided, is, unquestionably, a valuable addition to our standard literary biography; whilst to the "voluminous and indefatigable" Mr. Prior belongs the undisputed honor of having collected and pre-

served, from tradition and other sources, nearly all the particulars of Goldsmith's life, which could by possibility be discovered. We do not wish to disparage the patient research and enthusiastic labors of Mr. Prior, when we speak of Mr. Forster's work as readable, valuable and entertaining; for the diligent compiler and the skilful adapter are in our opinion equally entitled to their meed of approbation. Nor will we quarrel with the work of Washington Irving, because it contains no startling fact that is not to be found in the two preceding biographies. "The life of a scholar," says Goldsmith himself, "seldom abounds with adventure; his fame is acquired in solitude * * * but we are fond of talking of those who have given us pleasure, not that we have anything important to say, but because the subject is pleasing."

Goldsmith appears to us to have been the true type of an Irishman. The virtues and frailties of his countrymen distinguished him through life. He had the "happy knack of hoping;" the heedless charity, the thoughtless imprudence, the habit of blundering, for which Irishmen are proverbially famous. He was the descendant of a race who were little learned in lessons of worldly wisdom. "The Goldsmiths," Mr. Prior was informed, "were always a strange family. They rarely acted like other people; their hearts were always in the right place, but their heads seemed to be doing anything but what they ought." The following sketch of his immediate ancestor, which Goldsmith has put into the mouth of the "Man in Black," is, we doubt not, true to the very life:—"My father, the younger son of a good family, was possessed of a small living in the church. His education was above his fortune, and his generosity greater than his education. Poor as he was, he had his flatterers poorer than himself; for every dinner he gave them they returned him an equivalent in praise; and this was all he wanted. The same ambition that actuates a monarch at the head of his army influenced my father at the head of his table; he told the story of the ivy-tree, and that was laughed at; he repeated the jest of the two scholars and one pair of breeches, and the company laughed at that; but the story of Taffy in the sedan chair was sure to set the table in a roar. Thus his pleasure increased in proportion to the pleasure he gave; he loved all the world, and he fancied all the world loved him." What wonder was it that from such a father poor Oliver should inherit some genial peculiarities and harmless eccentricities at which worldly wise men shook their heads!

"Oliver's education"—we quote from Washington Irving—"began when he was about three years old; that is to say, he was gathered under

* The Life of Oliver Goldsmith, M. B., from a variety of Original Sources, by James Prior, 2 vols. 1837. The Life and Adventures of Oliver Goldsmith: a biography in four books, by John Forster, 1848. Oliver Goldsmith: a biography, by Washington Irving. 1849.

the wings of one of those good old motherly dames, found in every village, who cluck together the whole callow brood of the neighborhood, to teach them their letters and keep them out of harm's way." The name of the old lady, who had the honor of first putting a book into the hands of Goldsmith, was Mistress Elizabeth Delap; but the future poet was a dull boy—in fact, his instructress described him as impenetrably stupid. "At six years of age he passed into the hands of the village schoolmaster, one Thomas (or as he was commonly and irreverently named, Paddy) Byrne," an old soldier, and who was probably the original of the famous sketch in the "Deserted Village":—

A man severe he was, and stern to view,
I knew him well, and every truant knew;
Well had the boding tremblers learned to trace
The day's disasters in his morning face;
Full well they laughed with counterfeited glee
At all his jokes, for many a joke had he;
Full well the busy whisper, circling round,
Conveyed the dismal tidings when he frowned:
Yet he was kind, or, if severe in aught,
The love he bore to learning was his fault.

Encouraged by some signs of juvenile quickness, Oliver's family decided on sending him to the University, and he was accordingly removed to schools of a higher order; but it is admitted that even there his proficiency was not very brilliant. "He was a plant that flowered late," said Johnson to Boswell; "there was nothing remarkable about him when young."—"And this," adds Mr. Forster, "was probably true. It is said that the richer a nature is the harder and more slow its development is like to be."

As soon as he had attained the age of sixteen, on the 11th of June, 1745, he was entered as a "sizer," or "poor scholar," of Trinity College, Dublin. At that time many menial offices and derogatory duties were imposed upon the sizer; he was called on to sweep the courts, carry up the dishes from the kitchen to the table where the fellows dined, and wait upon them during their repast. Goldsmith keenly felt these indignities. He had, besides, "a savage brute for a tutor"—one Wilder—"a man of violent and capricious temper" * * * who abused him in presence of his class-mates as ignorant and stupid; ridiculed him as awkward and ugly; and, at times, in the transports of his temper, indulged in personal violence."*

When very young poor Oliver had had a severe attack of small-pox, which had shockingly disfigured his originally not very handsome face; his figure was short, thick, and ungainly, and his manners awkward and embarrassed. His personal appearance was, therefore, anything but prepossessing, and, like many men of genius, he was an irregular and immethodical student. His college career was ultimately pronounced a "wretched failure." On the 27th of February he took his bachelor's degree and his final leave of the University, and returned home to his friends.

* Washington Irving.

His father was now dead; his mother dwelt in a small cottage, "where she had to practise the severest frugality." His brother Henry, seven years his senior, but who had married early and improvidently, with a curacy of 40*l.* a year, eked out a subsistence by school-keeping. None of his relatives could offer him more than a temporary home. What could Oliver do? His friends recommended the church; but the youth had conscientious scruples. These were, however, at length overruled, and he agreed to qualify himself for his sacred functions. But two years of probation had to be passed before he was able to take orders; and how were they spent?

"It is the sunny time," writes Mr. Forster, "between two dismal periods of his life. He has escaped one scene of misery; another is awaiting him; and what possibilities of happiness lie in the interval it is his nature to seize and make the most of. He assists his brother Henry in the school; runs household errands for his mother; writes scraps of verses to please his uncle Contarine;* and, to please himself, gets cousin Bryanton and Tony Lumpkins of the district, with wandering bear-leaders of genteeler sort, to meet at an old inn by his mother's house, and be a club for story-telling, for an occasional game of whist, and for the singing of songs. First in these three accomplishments, great at Latin quotations, as admirer of happy human faces greatest of all, Oliver presides. Cousin Bryanton had seen his disgrace in college, and thinks this a triumph indeed. * * * Thus the two years passed. In the day-time occupied, as I have said, in the village-school; on the winter's nights at Conway's; in the evenings of summer strolling up the Inny's banks to fish or play the flute, otter-hunting by the course of the Shannon, learning French from the Irish priests, or winning a prize for throwing the sledge-hammer at the fair at Ballymahon. Two sunny years, with sorrowful affection long remembered; but hardly better than his college course to help him through the world."

But when Goldsmith presented himself before the bishop of the diocese for ordination, his usual ill-luck attended him. Whether it was that the bishop was displeased at his unclerical costume, for to do honor to the occasion, the ill-starred candidate had arrayed himself in scarlet inexpressibles; or that he showed himself deficient in theological information, or that reports of his academical irregularities had preceded him—too true it is, that he returned home rejected. After another brief interval, (during which Oliver officiated as tutor in a neighboring family, and, moreover, overcome by his wandering propensity, with thirty pounds in his pocket, made a ridiculous sally in quest of adventures,) his family again took counsel together, and it was resolved that he should make trial of the law. He accordingly started

* Goldsmith's most generous relative, who relieved him in all his early straits and difficulties, and who appears to have been the only one of his friends who had any real faith in him.

for Dublin, on his way to London, where he was to keep the usual terms common to Irish students, for which purpose his friends had furnished him with 50*l.* But he spent the money in Dublin—some say he was stripped of it in a gaming-house—and after a few weeks, penniless, dejected, disheartened, and penitent, trudged back to his friends. Physic was the next experiment. For the purpose of studying the healing art he set out for Edinburgh, and arrived there in the autumn of 1752. "An instance of the habitual thoughtlessness belonging to his character," we are informed by Mr. Prior, "occurred at the moment of first setting foot in the northern metropolis. Having procured a lodging and deposited his luggage, he eagerly sallied forth to gratify curiosity by viewing the city, in which, having occupied the whole of the day, the approach of night reminded him that he had neither inquired the name of the landlady, nor the street in which she lived. In this dilemma, having wandered about in a search which might have been useless, an accidental meeting with the cawdy, or porter, whom he had employed in the morning in removing to his new abode, obviated a difficulty that might have occasioned inconvenience." Having passed two winters at Edinburgh, Goldsmith made up his mind to finish his medical education on the continent. After some of his usual mishaps, he made his way to Leyden, (his good-natured uncle, Contarine, providing the funds,) where he remained about a year; and attended the lectures of Gaubius on Chemistry, and Albinus on Anatomy. From Leyden he is supposed to have set out on his famous continental tour, which he commenced in February, 1755,* furnished, it has been said, "with one spare shirt, a flute, and a single guinea."

We shall not attempt to follow him in his wanderings. He passed an evening in the society of Voltaire at Paris; at Geneva he became travelling tutor to "a mongrel young gentleman, son of a London pawnbroker;"† and at length, after a variety of adventures, returned to England in 1756. It seems quite true, that the greater part of his journey was performed on foot, and that he was often indebted to his flute for lodging and a meal. "Countries wear a very different appearance," he says, in his "Enquiry into Polite Learning," 1759, "to travellers of different circumstances. A man who is whirled through Europe in a post-chaise, and the pilgrim who walks the grand tour on foot, will form very different conclusions. *Haud inexpertus loquor.*" And the well-known lines in the "Traveller," are doubtless as *true* as they are expressive and beautiful:—

How often have I led thy sportive choir,
With tuneless pipe, beside the murmuring Loire!
Where shading elms along the margin grew,
And freshened from the wave the zephyr flew;

And haply, though my harsh touch, faltering still,
But mocked all tune and marred the dancer's skill,
Yet would the village praise my wond'rous power,
And dance forgetful of the noontide hour.

On his arrival in England, Goldsmith appears to have found himself worse off than whilst vagabondizing on the continent. But poverty made him fertile in shifts and expedients. It is rumored that about this time he became a strolling player. Then he went to London; called at the apothecaries' shops, and asked for employment to run with their medicines, spread their plasters, and, in the language of advertisements, make himself generally useful. Homeless and friendless, he wandered about the streets at night with a few half-pence in his pocket. "Ten or twelve years later," writes Mr. Forster, "Goldsmith startled a brilliant circle at Sir Joshua's, with an anecdote of 'When I lived among the beggars in Axe Lane,' just as Napoleon, fifty years later, appalled the party of crowned heads at Dresden, with his story of 'When I was a lieutenant in the regiment of La Fère!'" At last he became an usher in a school, a miserable, browbeaten, worried, and despised drudge; where he was "up early and late," and was the "laughing-stock of the boys." He soon quitted this wretched vocation, and was houseless and penniless again. In his dismal poverty he was found out by an Edinburgh fellow-student, who furnished him with funds to commence the practice of medicine, in a small way, among the poor in Bankside, Southwark. Among his patients was a journeyman printer, who worked for Mr. Samuel Richardson, the author of "Pamela," and then a flourishing publisher. The printer introduced him to his master, who offered him employment, and Goldsmith was enabled to make a fresh start as reader and corrector of the press.

He did not probably remain long in this situation. At Edinburgh he had formed an intimacy with the son of a Dr. Milner, who kept a large classical academy at Peckham; and young Milner, having found out his old acquaintance, made him a liberal offer to assist in the management of the school. He was here kindly treated, but his habits were not those of the pedagogue. The scholars entertained little respect for him; and though he spent his money in buying them sweetmeats, played all sorts of tricks upon him. "His small supplies," says Mr. Prior, "were thus exhausted, frequently before the stated salary became due, when Mrs. Milner would say to him with a smile, upon application for an advance, 'You had better, Mr. Goldsmith, let me take care of your money, as I do for some of the young gentlemen;'" to which he would reply, in the same spirit of good-humor, "In truth, madam, there is equal need." At the table of Dr. Milner, he frequently met with one Griffiths, the proprietor of the "Monthly Review." Griffiths, a shrewd, hard man of business, saw that Goldsmith was clever and very poor, that he was just the animal for hack authorship, and might be had cheap. He accordingly offered him a permanent engagement as a contrib-

* The dates in Washington Irving's biography are frequently incorrect. A little more care in revising the work for the press would have prevented such blunders.

† Washington Irving.

utor to the Review, with board and lodging, and a small fixed salary. Poor Oliver suffered the bookseller to make his own terms, and, "in his twenty-ninth year," in the words of Mr. Forster, "sat down to the precarious task-work of author by profession." This literary vassalage lasted five months. Even to poor spirit-broken Goldsmith it was too humiliating to be long endured. Mr. and Mrs. Griffiths both exerted the privilege of patching, altering, and (in their own eyes) amending his reviews. They kept him constantly at the desk, and when he tried to assume a spirit of independence, they accused him of being *above his situation*. The connection with Griffiths was dissolved, but Oliver was now fairly embarked in the profession of authorship. He had become a book-seller's hack and a Grub-street scribe; and for many years to come, he was destined to the hardest species of garret-toil and mental drudgery.

We have hitherto traced his fortunes somewhat minutely; but we cannot pretend to follow him in every stage of his literary career. That career is now commemorated as one of the world's great facts. It commenced in poverty and obscurity, and terminated in triumph and celebrity. His privations at first were great, but his ultimate success was splendid. Though he had fallen upon days when literature had to fight its own battles, and the man of letters was left to struggle for himself, he indulged in no repinings or regrets. He did not lament that the age of patronage had passed away, and that guineas were no longer given for dedications and birth-day odes. On the contrary, like a good and sensible man, he rejoiced at the change which, by insuring the independence, raised the character of the literary man. When he had obtained some degree of consideration, and while the memory of his early struggles was yet fresh in his recollection, he calmly and truly observed in one of his "Chinese Letters,"*—"At present, the few poets in England no longer depended on the great for subsistence; they have now no other patrons but the public; and the public, collectively considered, is a good and generous master. It is indeed too frequently mistaken as to the merits of every candidate for favor, but to make amends it is never mistaken long." And again—"A life of independence is generally a life of virtue. It is that which fits the soul for every generous flight of humanity, freedom, and friendship. * * * * Serenity, health, and affluence, attend the desire of rising by labor; misery, repentance, and disrespect, that of succeeding by extorted benevolence. The man who can thank himself alone for the happiness he enjoys is truly blest; and lovely, far more lovely, the sturdy gloom of laborious indigence, than the fawning simper of thriving adulation."

It is not uninteresting to trace the gradual change in Goldsmith's circumstances, as shown in the character of the habitations which he suc-

sively occupied. He tenanted at first a mean apartment "somewhere in the vicinity of Salisbury Square, Fleet Street;" but, in order to appear more like a gentleman, he directed his letters (or "hailed," as it is termed) from the "Temple Exchange Coffee-house, near Temple Bar." He probably at this time adopted the notable expedient of a poor countryman, in going abroad to pay visits on *clean-shirt-days* only, but on other occasions wisely keeping within doors. His next place of residence was "on the first floor of the house, No. 12, Green Arbor Court, between the Old Bailey, and what was lately Fleet Market."*

Washington Irving, who many years since visited this locality on a literary pilgrimage, says, that "It then existed in its pristine state, and was a small square of tall and miserable houses, the very intestines of which seemed turned inside out, to judge from the old garments and frippery that fluttered from every window. It appeared to be a region of washerwomen, and lines were stretched about the little square, on which clothes were dangling to dry." It may be as well to add, that all traces of this singular shrine of poverty-stricken genius have long since disappeared. "Green Arbor Court," says Mr. Forster, "is now gone forever; its miserable wretchedness was replaced by the decent comfort of a stable. The houses, crumbling and tumbling in Goldsmith's day, were fairly rotted down some twelve or fifteen years since; and it became necessary, for safety sake, to remove what time had spared."

The present Green Arbor Court in the Old Bailey must not, therefore, be confounded with the locality tenanted by Goldsmith. It was whilst residing here that abject poverty betrayed him into an act of indiscretion for which he afterwards bitterly suffered. Before leaving his old lodgings, Dr. Milner had procured him an appointment as physician to one of the factories on the coast of Coromandel; and the poet was suddenly dazzled with visions of Oriental splendor. But it appears that he failed to take the necessary steps to secure the magnificent prize, and it was transferred to another. Disappointed in his Indian scheme, he turned his attention to the navy, and probably, as Mr. Prior observes, "induced by the example of several acquaintances, and the remembrance of Grainger and Smollett, who, in the spirit of adventure, or for a more extensive observation of mankind, pursued a similar course in early life," he resolved to present himself to be examined at the College of Surgeons for the humble situation of an "hospital mate." His difficulty was to procure a decent suit of clothes for the occasion, and in this dilemma he applied to Griffiths, who, on being furnished with four articles for the "Monthly Review," undertook to become his security to a tailor. In the books of the College of Surgeons there is an entry which we quote without remark, for it is too expressive to require comment. "At a court of examiners

* These letters were afterwards remodelled and published under the title of the "Citizen of the World."

* Prior's Life of Goldsmith, vol. I.

held at the theatre, 21st December, 1758 * * * James Bernard, mate to an hospital. Oliver Goldsmith found not qualified for ditto."

The hack author returned to his drudgery, and four days afterwards—on a Christmas day!—pawned the clothes in which he had stood his examination, for the immediate purpose of paying some small arrears of rent to his landlady, whose husband had been arrested for debt. He was now in the hands of Griffiths, who peremptorily demanded the return of the unlucky suit. When it was not forthcoming he accused Goldsmith of dishonesty. There is something touching in the unhappy man's reply: "Had I been a sharper—had I been possessed of less good-nature, and native generosity, I might surely now have been in better circumstances. I am guilty, I own, of meanness, which poverty unavoidably brings with it; my reflections are filled with repentance for my imprudence, but not with any remorse for being a villain."

But better days were now in store for him. In March, 1759, he published his "Enquiry into the present state of Polite Learning in Europe," and his reputation among the booksellers being now established, and his circumstances now continuing to improve, "about the middle of 1760," says Washington Irving, "he emerged from his dismal abode in Green Arbor Court, and took respectable apartments in Wine Office Court, Fleet street."

It was here, on the 31st of May, 1761, he received his first visit from Dr. Samuel Johnson. The commencement of their acquaintance was most characteristic. Goldsmith had invited a large party to a literary supper, and he requested Dr. Percy, as a mutual friend, to bring Johnson with him to the repast. On calling for the great literary potentate, Dr. Percy was surprised at his extraordinary smartness, and could not help inquiring the reason of his paying such unwonted regard to his personal appearance. "Why, sir," replied Johnson, "I hear that Goldsmith, who is a very great sloven, justifies his disregard of cleanliness and decency by quoting my practice, and I am desirous this night to show him a better example."

It is almost impossible to avoid making a comparison between the literary career of Goldsmith and Johnson;—and by the eloquent pen of Washington Irving that comparison has been admirably drawn. "Both had struggled from early life with poverty," says the American biographer, "but had struggled in different ways. Goldsmith, buoyant, heedless, sanguine, tolerant of evils, and easily pleased, had shifted along by any temporary expedient; cast down at every turn, but rising again with indomitable good humor, and still carried forward by his talent at hoping. Johnson, melancholy and hypochondriacal, and prone to apprehend the worst, yet sternly resolute to battle with and conquer it, had made his way doggedly and gloomily, but with a noble spirit of self-reliance, and a disregard of foreign aid. * * * * *

Goldsmith's poverty was never accompanied by that guardian pride which kept Johnson from falling into the degrading shifts of poverty. Goldsmith had an unfortunate facility at borrowing, and helping himself along by the contributions of his friends, no doubt trusting, in his own hopeful way, of one day making retribution. Johnson never hoped, and therefore never borrowed. In his sternest trials he proudly bore the ills he could not master. * * * * * Though, like Goldsmith, an immethodical student, he had imbibed deeper draughts of knowledge, and made himself a riper scholar. While Goldsmith's happy constitution and genial humor carried him abroad into sunshine and enjoyment, Johnson's physical infirmities and mental gloom drove him upon himself, to the resources of reading and meditation; threw a deeper, though darker enthusiasm into his mind, and stored a retentive memory with all kinds of knowledge." We might add, that in the buoyant temper of Goldsmith, and the sturdy spirit of Johnson, we discern something of the inherited and inherent peculiarities of race. The patient Saxon and quick-blooded Celt appear in striking contrast; their virtues and failings were marked and prominent; upon each of them the stamp of the national character was firmly impressed. But they were attracted together by strong sympathies, and difference of temper served, as it has done in many other instances, to attach them more closely to each other.

Goldsmith had long felt the want of a monitor and guide. His yielding, gentle nature needed support, and in his weakness he felt that it was good for him to lean in confidence and reliance on the strong-minded Englishman. A memorable scene occurred one morning at Wine Office Court, which forcibly illustrates the characters and position of the two men. The story is well known, and has been made the subject of a graphic painting by a modern artist. We cannot do better than give it in Dr. Johnson's own words. "I received one morning," he says, "a message from poor Goldsmith that he was in great distress, and, as it was not in his power to come to me, begging that I would come to him as soon as possible. I sent him a guinea, and promised to come to him directly. I accordingly went as soon as I was dressed, and found that his landlady had arrested him for rent, at which he was in a violent passion; I perceived that he had already changed my guinea, and had a bottle of Madeira and a glass before him. I put the cork into the bottle, desired he would be calm, and began to talk to him of the means by which he might be extricated. He then told me he had a novel ready for the press, which he produced to me. I looked into it and saw its merit; told the landlady I should soon return; and, having gone to a bookseller, sold it for sixty pounds. I brought Goldsmith the money, and he discharged his rent, not without rating his landlady in a high tone for having used him so ill."

The novel was the "Vicar of Wakefield," and the bookseller to whom it was sold was Mr. Francis Newbury. Strange to relate, the purchaser kept the manuscript by him more than a year and a half before he ventured to publish it. But the work was destined to an extensive and enduring popularity, of which the fortunate bookseller never dreamed. "It came out," says Washington Irving, "on the 27th of March, 1766; before the end of May a second edition was called for; in three months more a third; and so it went on, widening in a popularity that has never flagged. Rogers, the Nestor of British literature, whose refined purity of taste, and exquisite mental organization, rendered him eminently calculated to appreciate a work of the kind, declared that of all the books, which, through the fitful changes of three generations, he had seen rise and fall, the charm of the 'Vicar of Wakefield' had alone continued as at first; and could he revisit the world after an interval of many more generations, he should as surely look to find it undiminished." We shall not attempt to inquire into the secret of this wonderful popularity. It is enough to say, that the work has been a blessed instrument in disseminating principles of mercy, tolerance, and kindness. The loving disposition and winning gentleness of spirit which characterized its author shine forth in every page. "Simple to very baldness," says Mr. Forster, "are the materials employed. But Goldsmith threw into the midst of them his own nature; his actual experience; the suffering, discipline, and sweet emotion of his own chequered life; and so made them a lesson and delight to all men." Who will not recognize, in the common qualities of mind attributed to the pastor's family, the leading peculiarities of the gifted writer? "In short," he says, at the conclusion of the first chapter, "a family likeness prevailed through all; and, properly speaking, they had but one character, that of being all equally *generous, credulous, simple, and inoffensive.*" The scope and objects of the tale have been eloquently summed up by Mr. Forster, in a few terse and expressive sentences, which we transfer with pleasure to our pages. "Good predominant over evil is briefly the purpose and moral of the little story. It is designed to show us that patience in suffering, that persevering reliance on the providence of God, that quiet labor, cheerful endeavor, and an indulgent forgiveness of the faults and infirmities of others, are the easy and certain means of pleasure in this world, and of turning pain to noble uses. It is designed to show us that the heroism and self-denial needed for the duties of life, are not of the superhuman sort; that they may coexist with many follies, with some simple weaknesses, with many harmless vanities; and that, in the improvement of mankind, near and remote, in its progress through worldly content to final happiness, the humblest of men have their places assigned them, and their parts allotted them to play."

Apart from its moral teachings, the "Vicar of Wakefield" is also valued as the most delightful picture of English domestic life in the language. All the tendernesses, virtues, and endearments of home—its pure enjoyments and tranquil pleasures—are beautifully set forth. It is a picture that could only have been drawn by one who himself deeply appreciated the ties of family affection. "And yet," observes Washington Irving, "how contradictory it seems that this, one of the most delightful pictures of home and homefelt happiness, should be drawn by a homeless man; that the most amiable picture of domestic virtue, and all the endearments of the married state, should be drawn by a bachelor, who had been severed from domestic life almost from boyhood; that one of the most tender, touching, and affecting appeals in behalf of female loveliness, should have been made by a man whose deficiencies in all the graces of person and manner seemed to mark him out for a cynical disparager of the sex."

Before the "Vicar of Wakefield," however, had made its appearance, Goldsmith established his reputation as a poet by the publication of the "Traveller." With many misgivings, on the part of its author, this charming poem was ushered into the world, and its success was most triumphant. Goldsmith now felt that he was rising in the world, and "accordingly," says Washington Irving, "emerged from Wine Office Court, and took chambers in the Temple." It is true they were but of humble pretensions, situated on what was then the library staircase, and it would appear that he was a kind of inmate with Jeffs, the butler of the society. Still he was in the Temple, that classic region rendered famous by the Spectator and other essayists, as the abode of gay wits and thoughtful men of letters; and which, with its retired courts and embowered gardens, in the very heart of a noisy metropolis, is, to the quiet-seeking student and author, an oasis freshening with verdure in the midst of a desert. Johnson, who had become a sort of growling supervisor of the poet's affairs, paid him a visit soon after he had installed himself in his new quarters, and went prying about the apartment, in his near-sighted manner, examining everything minutely. Goldsmith was fidgeted by this curious scrutiny, and apprehending a disposition to find fault, exclaimed, with the air of a man who had money in both pockets, "I shall soon be in better chambers than these." The harmless bravado drew a reply from Johnson which touched the chord of proper pride. "Nay, sir," said he, "never mind that. *Nil te quesi-
veris extra*,"—implying that his reputation rendered him independent of outward show. To this anecdote of Johnson and Goldsmith we must add another equally characteristic of the two men. At the Literary Club, of which both were members, the merits of the "Traveller" were warmly discussed—many of the members could scarcely believe that a man like Goldsmith could have written such a poem. Some of them suspected

that Johnson, who had contributed a few lines, was the author of the whole. Accordingly, Mr. Chamier, one of the members, on the first occasion that presented itself, undertook to sound the author on the subject. He boldly commenced with the question, "Mr. Goldsmith, what do you mean by the last word in the first line of your 'Traveller'—

Remote, unfriended, melancholy, slow—

Do you mean tardiness of locomotion?" Johnson was there, watching his flurried friend, and thus reports his reply. "Goldsmith," he says, "who would say something without consideration, answered 'Yes.' I was sitting by, and said, 'No, sir, you did not mean tardiness of locomotion; you mean that sluggishness of mind which comes upon a man in solitude.'—'Ah!' exclaimed Goldsmith, 'that was what I meant.' Chamier," continues Johnson, "believed then I had written the line, as much as if he had seen me write it."

No doubt—and yet how natural was the thoughtless, off-hand reply from the lips of the inconsiderate Hibernian. "No man," truly remarked the great lexicographer, on another occasion, "is more foolish than Goldsmith when he has not a pen in his hand, or more wise when he has."

It was Goldsmith's fortune to achieve success late in life. He was nearly forty when the publication of the "Traveller" raised him to distinction in the world of letters. "Beginning," observes Mr. Forster, "with not even the choice which Fielding admits was his, of hackney writer or hackney coachman, he has fought his way at last to consideration and esteem. But he bears upon him the scars of his twelve years' conflict; of the mean sorrows through which he has passed, and of the cheap indulgences he has sought relief and help from." Again:—"His reputation had been silently widening, in the midst and in despite of his humble drudgery; his poem, his novel, his essays, had imperceptibly enlarged the circle of his admirers; and he was somewhat suddenly subjected to the social exactions that are levied on literary fame." As we come to the last period of Goldsmith's life it is necessary to bear all this in mind, because it accounts for most of the foibles, follies, and indiscretions that have been laid to his charge. In his days of penury he had not been very scrupulous about his acquaintances. As his fortunes improved he continued easily accessible, fond of conviviality, and careless of the world's opinion. As soon as he obtained a footing in polite society he did not discard his old associates, or forsake his former haunts. His delight was in free-and-easy clubs; particularly in a certain club meeting on Wednesday evenings at the Globe Tavern in Fleet street. A countryman named Glover once accompanied him to this congenial resort, and was shocked to hear the familiar tone in which Goldsmith was addressed by some of the humbler members. A wealthy pig-butcher, especially, was singularly free and easy. Raising his glass, with

a familiar nod, he pledged the poet in the hearing of the whole company, "Come, Noll, here's my service to you, my old boy." We quote the sequel of the story from Washington Irving. "Glover whispered to Goldsmith that he should not allow such liberties. 'Let him alone,' was the reply, 'you'll see how civilly I'll let him down.' After a time he called out, 'Mr. B., I have the honor of drinking your good health.' Alas! dignity was not poor Goldsmith's forte; he could keep no one at a distance. 'Thank'ee, thank'ee, Noll,' nodded the pig-butcher, scarce taking the pipe out of his mouth. 'I don't see the effect of your reproof,' whispered Glover. 'I give it up,' replied Goldsmith, with a good-humored shrug; 'I ought to have known before now there is no putting a pig in the right way.'"

Already distinguished as a novelist and poet, Goldsmith's next triumph was in the drama. After having been subjected to many vexatious delays, his comedy of the "Good-natured Man" at length made its appearance; and though but partially successful on its first representation, it justified the expectations of his friends, and has since kept possession of the stage. But the author (who had gone to the theatre in a new suit of clothes, manufactured for the occasion, value, 8*l.* 2*s.* 7*d.*) was mortified and disappointed. Concealing his chagrin, he went to the Literary Club, and chatted to some of its members; but he afterwards confessed that when all were gone, except Johnson, he burst out a-crying, and protested he would never write again. It is characteristic of Goldsmith that he afterwards, in his guileless simplicity of heart, told this story to a large company at dinner, when Johnson was present, who cried out in astonishment, "I thought all this had been a secret between you and me, and I am sure I would not have said anything about it for the world."—"It is singular, however," observes Washington Irving "that Goldsmith, who thus in conversation could keep nothing to himself, should be the author of a maxim which would inculcate the most thorough dissimulation. 'Men of the world,' says he, in one of the papers of the Bee, 'maintain that the true end of speech is not so much to express our wants as to conceal them.' How often is this quoted as one of the subtle remarks of the fine-witted Talleyrand!"

"The Good-natured Man," however, had a tolerable run, and produced its author no less a sum than 400*l.* He now felt disposed to launch out into a more luxurious style of living, and he accordingly invested his money in the purchase of the lease of a set of chambers on the second floor in No. 2, Brick Court, Middle Temple. This was his last residence—the last of the local habitations which his genius has hallowed to all posterity. Sir William Blackstone, the author of the *Commentaries*, had chambers immediately under him, and it is said, often complained of the rackets and revels overhead. Although, like Johnson, fond of town life, Goldsmith appears to have had a true taste and relish for country scenery. He occa-

sionally took strolls in the neighborhood of London, (which he called making "a shoemaker's holiday;") and when hardly pressed by the book-sellers, he would take a quiet cottage a few miles from town, for the purpose of uninterrupted labor. It was thus that the "Deserted Village" was written. Strolling among the green lanes and hedgerows in the environs of London, he relieved his "prosaic toils" by the composition of this charming poem. When we recollect the circumstances under which it was penned, we need not wonder at the melancholy tone that pervades it. It was written under the influence of a sacred sorrow; in those moods of melancholy which called forth all the poet's tenderness, and imparted a more than wonted softness to the delineations of his pen. His brother Henry, the supposed original of the village preacher, was just dead. If his poetical portrait be correct, he was a genuine Goldsmith—a true scion of that gentle and generous race.

Thus to relieve the wretched was his pride,
And e'en his failings leaned to virtue's side:
But in his duty prompt at every call,
He watched and wept, he prayed and felt for all;
And, as a bird each fond endearment tries
To tempt its new-fledged offspring to the skies,
He tried each art, reproved each dull delay,
Allured to brighter worlds, and led the way.

While the memory of such a brother was yet fresh in his heart, and his grief was green, it no doubt occurred to Goldsmith to hand down his blameless career to posterity, as a graceful tribute of fraternal affection. And we further agree with Washington Irving, "that the whole character seems traced, as it were, in an expiatory spirit; as if, conscious of his own wandering restlessness, he sought to humble himself at the shrine of excellence which he had not been able to practise."

About this time an interesting episode enlivened Goldsmith's literary life. At the house of Sir Joshua Reynolds he made the acquaintance of a Mrs. Horneck—a widow lady, with a son in the Guards, and two beautiful, amiable, and accomplished daughters. The whole family took a decided fancy to the whimsical poet, and he in return was not insensible to the charms of the daughters. The elder of these young ladies was known among her friends by the name of Little Comedy, and the younger (whose heart by the way was still unengaged) had received the *sobriquet* of the Jessamy Bride. It has been hinted that the poor author, to whom nature had denied the fascinations of person which are said to form the principal recommendation to the favor of the fair sex, was surprised into an attachment to the Jessamy Bride, which, though commenced in sportive familiarity, at length assumed a serious aspect. It is certain that his intimacy with the Hornecks had an effect upon his tailor's bills, and that, to render his awkward figure more attractive, he arrayed it in the costliest raiments of the day. In the summer of 1770, he made an excursion with his new friends to Paris. The following anecdote, which has been related of

Goldsmith, whilst sight-seeing in the French metropolis, will provoke a smile, especially if we consider that the Jessamy Bride was probably present and beheld his discomfiture. "Being with a party at Versailles, viewing the water-works, a question arose among the gentlemen present, whether the distance from whence they stood to one of the little islands, was within the compass of a leap. Goldsmith maintained the affirmative; but, being bantered on the subject, and remembering his former powers as a youth, attempted the leap, but, falling short, descended into the water, to the great amusement of the company." With the Horneck he must have spent many delightful days. He was a frequent guest at their country seat at Barton, in Suffolk; they appreciated his character, and he was ever ready to add to their fund of harmless amusement. We may form some idea of the playful *bardinage* and humorous sallies that enlivened this intercourse by perusing the following lines which occur, among others, in a humorous letter indited by the poet to Little Comedy, (then become Mrs. Bunbury.) The ladies, it appears, would often invite him to play at *loo*, the fashionable game of the day, and, affecting to be his advisers, get him into all sorts of difficulties:—

Now, ladies, I ask, if law-matters you're skilled in,
Whether crimes such as yours should not come
before Fielding;

For giving advice that is not worth a straw,
May well be called picking of pockets in law;
And picking of pockets, with which I now charge ye,
Is, by quinto Elizabeth, death without clergy.
What justice, when both to the Old Bailey brought!
By the gods, I'll enjoy it, though 'tis but in
thought!

Both are placed at the bar, with all proper decorum,
With bunches of fennel and nosegays before 'em;
Both cover their faces with mops and all that,
But the judge bids them angrily take off their hat.
When uncovered, a buzz of enquiry runs round,
"Pray what are their crimes?"—"They've been
pilfering found."

"But pray who've they pilfered?"—"A doctor, I
hear."

"What, yon solemn-faced, odd-looking man that
stands near?"

"The same."—"What a pity, how does it surprise one!

Two handsomer culprits I never set eyes on.
Then their friends all come round me with cringing and leering,

To melt me to pity, and soften my swearing.
First, Sir Charles advances, with phrases well
strung,

"Consider, dear doctor, the girls are but young."

"The younger the worse," I return him again;

"It shows that their habits are all dyed in
grain."

"But then they're so handsome, one's bosom it
grieves."

"What signifies *handsome*, when people are
thieves?"

"But where is your justice? their cases are
hard."

"What signifies *justice*? I want the *reward*."

This was society for which Goldsmith was adapted, and in which he felt himself at home.

He had no taste for stately grandeur; nor did he particularly distinguish himself in highly intellectual circles. Above all things he loathed the pompous Pecksniffs of the world, who, by dint of assurance and assumption, sometimes succeed in raising a commanding reputation. In the "Citizen of the World" he has given us a graphic picture of "a great man," from the mouth of his Chinese philosopher, which is worth quoting:—"I was yesterday invited by a gentleman to dinner, who promised that our entertainment should consist of a haunch of venison, a turtle, and a great man. I came, according to appointment. The venison was fine, the turtle good, but the great man insupportable. The moment I ventured to speak I was at once contradicted with a snap. I attempted, by a second and third assault, to retrieve my lost reputation, but was still beat back with confusion. I was resolved to attack him once more from entrenchment, and turned the conversation on the government of China; but even here he asserted, snapped, and contradicted as before. Heavens! thought I, this man pretends to know China even better than myself. I looked round to see who was on my side; but every eye was fixed in admiration on the great man; I therefore, at last, thought proper to sit silent, and act the pretty gentleman during the ensuing conversation."

To all his literary friends Goldsmith's blundering simplicity was a source of infinite amusement. His want of *tact* was everywhere apparent. He would tell stories in the wrong place, and retail jokes of which he had forgotten the point. We find one or two amusing instances in Mr. Irving's biography. "Beauchere was extremely apt to circulate stories at his expense, founded perhaps on some trivial incident, but dressed up with the embellishments of his sarcastic brain. One relates to a venerable dish of peas, served up at Sir Joshua's table, which should have been green, but were any other color. A wag suggested to Goldsmith, in a whisper, that they should be sent to Hammersmith, as that was the way to *turn-'em-green* (Turnham Green). Goldsmith, delighted with the pun, endeavored to repeat it at Burke's table, but missed the point. 'That is the way to *make 'em green*,' said he. Nobody laughed. He perceived he was at fault. 'I mean that is the *road* to turn 'em green.' A dead pause, and a stare; whereupon, adds Beauchere, 'he started up disconcerted, and abruptly left the table.' * * On another occasion, the poet and Beauchere were seated, at the theatre, next to Lord Shelburne, the minister, whom political writers thought fit to nick-name Malagrida. 'Do you know,' said Goldsmith, to his lordship, in the course of conversation, 'that I never could conceive why they call you Malagrida, for Malagrida was a very good sort of man.'"

In 1773, the comedy of *She stoops to Conquer; or, the Mistakes of a Night*, was produced with triumphant success. It must have been written nearly two years before, but many perplexing cir-

cumstances had prevented its appearance. Johnson, Burke, and Reynolds, and a host of Goldsmith's distinguished friends were present, and joined in the hearty laugh which was kept up throughout the performance. Johnson's criticism on this brilliant production will be long remembered for its truth, as well as for its kindness to the sensitive author; "I know of no comedy for many years," he said, "that has so much exhilarated an audience; that has answered so much the great end of comedy—making an audience merry."

In the commencement of the year 1774, Goldsmith was surrounded by an accumulation of work, that would have tasked the energies of the strongest mind. He was behindhand with the booksellers, and deeply in debt. His constitution was undermined partly by town dissipation, partly, perhaps, by early privations. He was over-worked and ill at ease; but he would not give way. He rallied himself as well as he could, and gave some entertainments in his chambers to Johnson and other friends. At length, on the 25th of March, he was taken ill. With characteristic imprudence, he persisted in dosing himself with James' powders, (a medicine he had been in the habit of taking,) notwithstanding the expostulations of his medical attendants. He continued to grow weaker, and about half-past four on Monday morning, the 4th of April, 1774, he expired, in the forty-sixth year of his age.

One affecting incident remains to be narrated. "There was one mourner," writes Washington Irving, "whose enthusiasm for his memory, could it have been foreseen, might have soothed the bitterness of death. After the coffin had been screwed down, a lock of his hair was requested for a lady, a particular friend, who wished to preserve it as a remembrance. It was the beautiful Mary Horneck, the Jessamy Bride. The coffin was opened again, and a lock of hair cut off which she cherished to her dying day. The lady," continues the biographer, "survived almost to the present day. Hazlitt met her at Northcote's painting room, about twenty years since, as Mrs. Gwyn, the widow of a General Gwyn of the army. She was at that time upwards of seventy years of age. Still, he said, she was beautiful, beautiful even in years. After she was gone, Hazlitt remarked how handsome she still was. 'I do not know,' said Northcote, 'why she is so kind as to come to see me, except that I am the last link in the chain that connects her with all those she most esteemed when young—Johnson, Reynolds, Goldsmith—and remind her of the most delightful period of her life.' Mrs. Gwyn, so well known as Mary Horneck, and the Jessamy Bride, died in 1840.

Having accompanied the biographers of Goldsmith through the principal scenes of his chequered life, we may, perhaps, be allowed a concluding remark. There are few writers, it will be admitted, who have achieved a wider popularity, or who have exercised and maintained a more

general and permanent influence on the English intellectual character than the author of the "Deserted Village." At every stage of life he is a friend and monitor. If, as his biographers have suggested, he was the author of "Goody Two Shoes," and other nursery rhymes published by his frequent employer, Mr. Francis Newbury—and there is nothing unreasonable in the supposition that these drolleries, slight and trivial as they may appear, were really written by wise and thoughtful men—his sportive productions amuse our earliest infancy. His histories of England, Greece, and Rome, still form the basis of the historical knowledge communicated in hundreds of our schools; and if these histories are not remarkable for any deep research, their clear and lucid style admirably adapts them for the purposes of instruction. His selected essays, the "Vicar of Wakefield," and the "Citizen of the World," are among the first volumes of English classics which, in youth and early manhood, are commended to our attention, and they never fail to leave a permanent impression on the mind. In maturer years they are recurred to with pleasure, and maxims and observations in daily use are taken from them. And when the meridian of life is passed, when the poetry of passion has lost its charm, and the mind is more readily attracted by sedate images and tranquil beauty, the "Deserted Village," and the "Traveller," are welcomed as favored friends, and referred to as models of all that is pure, correct, and good. To every stage and condition of life we maintain that Goldsmith has been a liberal benefactor. But, above all, he has left us the example of a life which, though defaced and deformed by many errors, was redeemed by so many virtues that we should be justified in rejoicing that he had lived even if he had not written a line.

THE DEATH OF FRANCIA.

BY W. BRAILSFORD.

When Raffaelle sent his famous St. Cecilia to Bologna, it was entrusted to the care of La Francia, who was his particular friend, to be unpacked and hung up. La Francia was old, and had for many years held a high rank in his profession; no sooner had he cast his eyes on the St. Cecilia, than, struck with despair at seeing his highest efforts so immeasurably outdone, he was seized with a deep melancholy, and died shortly after.—*Diary of an Ennuyée.*

As the long shadow falls
At fading eve, when some soft note recalls
The old home voices happy childhood heard,
Upon a heart that fame's high impulse stirred,
The presence of the beautiful appalls,
And casts all old day-dreams to Lethe's brim,
As fancies vague and dim.

O, weary heart of thine,
High genius! wherefore shouldst thou grieve, yet
pine,
The laurel crown and votive wreath to wear?
Why falter in your path, and fear to share
One guerdon of the soul-fed art divine?
It is not thus that man's declared intent
Should lapse in banishment.

What has thy spirit bowed
In this thy winter?—what majestic cloud?
Vision!—which hides thy proud heart's dearest
dream,
Which makes reality unearthly seem,
And the true efforts of thy life dost shroud.
Thus fall the flowers that bloomed so fresh and fair,
All perishing in air.

Ah, the sad verity
That overcomes men's minds, and wills to be
The shadow o'er their paths of love and life,
The slayer of the fame whose ways are strife,
Where legions run the race in company.
O, certain light of truth, thy rays dispel
Hopes erst invincible!

Thus fled the mystic faith
That is art's incense and its vital breath;
Thus died La Francia as some star outshone,
Over whose sphere a brighter light had grown,
And in the full eclipse had welcomed death,
Dimmed by the lustre of another's sheen,
And fading all unseen.

Yet is it well to die?
To let life's purpose yield the victory;
To die, and leave each passionate desire,
As some new tones half trembling on the lyre,
Or bud that folds its cup all silently;
To die, and pass away like some frail flower
Or wonder for an hour.

Faint not upon your way,
You who would hold o'er human hearts time's away;
Is it not meet that those who yearn to wear
Fame's immortality, should fairly bear
The cares and turmoils of life's working day,
That thus when night proclaims her sable reign,
Their wishes prove not vain?

NEGRO-ENGLISH BIBLE.—A paper published in the Christian Examiner gives the following statement respecting this translation of the Bible. The version of the New Testament, printed by the British and Foreign Bible Society for the English negroes of Surinam, is a curiosity in its way. These negroes have no distinct language, but speak a strange lingo compounded of African words, or clipped and softened English words, and of violently treated Portuguese words. The society brought upon itself smart censures and much ridicule for the seemingly irreverent and ludicrous character of the volume they had published. The whole edition, save a few copies, was sent to Surinam. These copies are becoming scarce, and at the sale of the Duke of Sussex's Library, one brought 3/. 10s., though its original cost could not have exceeded two or three shillings. The annexed extracts, literally translated, will give a specimen as little offensive as any that can be found in the book. The word *virgin* is rendered *wan njo ewenjo*, i. e., one new wench.

The following verses are from Matthew v.:

"1. But when Jesus see the people, he go after one mountain top, he go sit down, then disciple for him come close by after him.

"2. And he opened him mouth and learned them and talk.

"Good is them, these the pretty in heart, because God's country is for them.

"3. Good is it for them, these the sorry in heart, because heart for them so cheery."

From Chambers' Journal.

THE TWO EMPRESSES AND THE ARTIST.

It was the middle of the year 1812, that year the latter months of which witnessed the annihilation of the French army on the plains of Russia. Such a catastrophe was far from the thoughts of a single inhabitant of Paris, when, one morning in the month of June, the celebrated artist Redouté was on his way to Malmaison to present to the Empress Josephine some paintings of lilies. He was a great favorite with her, from his having devoted his pencil to flowers, of which she was passionately fond. In full enjoyment of the lovely morning, he was gayly crossing the garden of the Tuilleries to get to the Place de la Concorde, where he intended taking a coach, when he saw a crowd eagerly hurrying in the direction of the walk by the water-side. The general cry, "The King of Rome!—the empress!" soon told him the object of attraction; and the artist quickened his steps, glad of the opportunity, thus by chance afforded him, of seeing the son of the emperor, the yet cradled child of fifteen months, whom so proud a destiny seemed to await.

It was indeed the King of Rome, in a little carriage drawn by four snow-white goats, and the Empress Maria-Louisa walking by its side. She was wrapped in a blue shawl, of a peculiar shade, known to be her favorite color. The crowd had gathered outside the grating, around which they pressed closely; and as Redouté stopped to gaze with the rest, he saw standing near him a young woman with a child in her arms. The garb of both bespoke extreme poverty; but the child's face was glowing with health, whilst the cheeks of the mother were pale and emaciated, and from her sunken eyes fell tears, which she cared not either to wipe away or conceal.

"My poor little one!—my darling!" she whispered as she pressed the child still closer to her bosom, "you have no carriage, my angel; no playthings—no toys of any kind. For him abundance, pleasure, every joy of his age; for thee, desolation, suffering, poverty, hunger! What is he that he should be happier than you, darling? Both of you born the same day, the same hour! I, as young as his mother, and loving you as fondly as she loves him. But you have now no father, my poor babe; you have no father!"

The artist overheard these words of woe, and stood with his eyes fixed upon the poor young mother, in utter forgetfulness of the King of Rome.

"Madame," said he, after a moment's hesitation, and in a low voice, "why do you not make known your situation to the empress?"

"To what purpose, sir?" cried the young woman somewhat bitterly. "Small compassion have the great ones of this world."

"But why not make the attempt?"

"I have done so, sir, already. I wrote to the empress, and told her that my son was born the same day, the same hour, with the King of Rome. I told her, alas! that he has no father, that my

strength is failing, that we are utterly destitute. But the empress has not deigned to answer."

"You will have an answer, rest assured. Perhaps the memorial has not been yet placed before her majesty. Give me your address, I beg of you." And after taking a memorandum of it, and slipping into her hand all the money he had about him, Redouté was soon rapidly making his way to the Place de la Concorde, where, just as he was stepping into a carriage, he discovered that his purse was empty.

"It is of no consequence," he said; "I have only to walk a little fast."

Josephine, meanwhile, had been eagerly expecting the promised visit of the usually punctual artist, and was beginning to feel uneasy lest some accident had occurred to occasion the prolonged delay, when he was announced.

"I ought to scold you," she said, as she received with her wonted gentle grace the artist's offering, "for delaying the pleasure I feel in seeing this admirable drawing."

"I must throw myself upon your majesty's goodness to excuse me," answered Redouté rather inconsiderately. "I had never seen the King of Rome, and to-day I have been fortunate enough to catch a glimpse of him." Josephine started, and Redouté, instantly aware of the awkwardness of mentioning the meeting, stopped suddenly in confusion.

"I am very glad," said Josephine, making a strong effort to repress her emotion, "that you have seen the son of the emperor. Pray tell me where you saw him, and who was with him?" Redouté hesitated.

"Pray, pray go on," said she gently, but earnestly. He obeyed; and told her every particular he had observed, as well as what had delayed his arrival by obliging him to walk to Malmaison.

"I see the great artist, as always happens, has a feeling heart," said Josephine, her sympathy aroused for the poor woman. "If Napoleon did but know the destitution of this child, born the same day, the same hour with his son! Be with me to-morrow morning at nine o'clock; we will together visit this poor creature." And the next morning at nine o'clock Redouté was at Malmaison; and an hour after, Josephine, undeterred by the dark, narrow, muddy passage, and the equally dark, damp stairs, increasing in steepness every step, had entered the wretched apartment, utterly bare of furniture, in the fifth story, inhabited by the widow of Charles Blanger.

"Madame," said Redouté, to whom Josephine had made signs to introduce her and the object of their visit, "you may rest assured that if the emperor knew your situation, he would give you relief; but there is now no necessity to trouble him. This lady, whom I have the honor to accompany, is good enough to say she will take you under her protection, and her protection is all-sufficient."

"What a lovely boy!" cried Josephine, as the

little orphan sat up in his cradle, and smilingly stretched out his little arms to his mother. "Redouté," she said, as she took the child and kissed it, "did you not tell me that he was born the same day with the King of Rome?"

"The same day and hour, madame," answered the young mother.

"Was it mentioned to the emperor at the time?"

"No, madame; we were happy then, and my poor Charles had too independent a spirit to ask anything from any one while he could work. He was an engineer; and though employment fluctuated, yet still we were never reduced to want. At his leisure time he used to construct model-machines, from one of which, novel and ingenious in the invention, he expected both fame and pecuniary advantage; but he has been suddenly taken from me, and I am left alone to struggle with misery and wretchedness. I am sinking lower and lower, and gradually every resource has been exhausted. Alas, I need not tell you!"—and she glanced sorrowfully around the miserable little apartment.

"To-morrow you shall quit this wretched, unwholesome abode," said the empress, as she gave the child to his mother, after fondly caressing him, and putting her purse into his little hand. "I will send you my own physician; his skill, and the comforts with which I hope to surround you, will restore your health. I rely on you, my good friend," added she, turning to the artist, "to arrange all this for me."

She was rising to quit the room, amid the tears and blessings of the widow, whose heart she had "made to sing for joy," when the door opened, and a young lady entered, at sight of whom Redouté stood motionless with astonishment. It was Maria-Louisa, accompanied by a newly-appointed chamberlain. As Maria-Louisa was never known to visit the poor man in his abode of poverty, Redouté had some excuse for the uncharitable judgment he formed on the instant—that this unusual proceeding on her part was intended either as an attempt to rival Josephine in the popularity gained by her active and unwearied benevolence, or to please the emperor, as proving the lively interest she took in a child born the same day and hour with the King of Rome. But whatever might have been her motive, certain it is that she was now standing in the widow's humble abode without deigning a salutation to any one in it.

Josephine was sweetness and gentleness itself; but there was something in this want of common courtesy that grated upon the pride of caste which, as a Creole of an illustrious race, the wife of the greatest captain of the age, and as one still fearing herself the empress, she retained amid desertion and the disgrace of her repudiation. It may be, too, that she recognized Maria-Louisa, though she had only seen the portraits of her who now filled her place; and she therefore resumed her seat, as if fearful that her standing might have been construed into homage. Maria-Louisa, on

her part, was far from suspecting that the female so simply dressed, so quietly seated in the miserable garret, was her still envied rival.

As the artist glanced from Maria-Louisa to the beautiful face of Josephine—for it was still beautiful, though bearing the impress of grief even more than of years—he observed that an unwonted expression of haughty disdain now clouded that brow, usually so radiant with benevolent kindness, and he half dreaded the result of this unexpected encounter. And now Maria-Louisa, without one caress to the child, or noticing it in any way, explained in a few words the object of her visit.

"Your intention is most laudable, doubtless, madame," said Josephine, still keeping her seat "but you are rather late; the young mother and the child are under my protection." Maria-Louisa, with a haughty glance at her who thus presumed to address the empress, said coldly, "I have some reason to believe that my patronage will be a little more advantageous." Here the chamberlain quickly interposed, "It is quite certain that you, madame, have the power of elevating the boy to any position you may choose for him, however high." With a momentary bitterness of feeling, excited by the involuntary retrospect of what she once had been, Josephine's disdainful eye seemed to measure the speaker from head to foot, as she said, "And pray, sir, what leads you to conclude that I am not able to raise whom I will still higher?"

"The lady doubtless intends," said Maria-Louisa in a tone of irony, "to place her protégé on the steps of the throne."

"Higher still, madame, if such were my pleasure," warmly retorted Josephine, now rising to withdraw; "for aught you can tell, I may have given kings to the world."

"Beware, madame," hastily whispered Redouté; "your majesty will betray yourself, and the emperor will be displeased." Josephine was silent; and the artist, who was upon thorns, hastily added, "I do not see why either of these ladies need give up her share in the happiness of doing good. I shall feel honored in accepting for my happy protégés whatever kindness it may please either to bestow upon them." Josephine made no answer, but with head erect left the room; and Redouté, respectfully bowing to Maria-Louisa, was following, glad to have prevented an outbreak which might have had serious consequences, when a hand laid upon his arm made him turn round: it was the chamberlain.

"Sir," said he in a low whisper, "do you know that the lady whom I have had the honor of attending here is her majesty, the Empress Maria-Louisa?"

"Sir," answered Redouté in an equally low voice, "the lady that I have had the honor of attending here is the Empress Josephine."

In less than two years after this meeting Josephine had sunk under the never-healed wound that Napoleon's desertion had inflicted, and died at Malmaison; and Maria-Louisa had, it may be

joyfully, quitted a country which she had never loved, and in which she never succeeded in making herself beloved. During these two years the widow had lived upon the daily bounty of her royal patronesses, and was consequently now as destitute as when they first entered her abode of poverty. In vain had Redouté often placed before Josephine his view of what patronage, to be really useful, ought to be—the helping others to help themselves. In vain had he urged her to establish the widow in some way of earning her independence. "Time enough for this when the boy is grown up." But death came, and reverse of fortune, and no friend now remained to the widow and the orphan but the artist, and nought remained to him from the vast wreck but his talent and his reputation. Circumstances might indeed render the productions of his pencil less a source of emolument, but these circumstances were but temporary; the artist would again rise to fame and fortune, while Napoleon and Maria-Louisa had fallen irretrievably.

Redouté acted on the principle he would have had the widow's royal patronesses to act; he procured employment for the widow; and, thanks to his influence, she was enabled to earn sufficient to place her above want, while he took upon himself the education of her child. But the mother's health was failing; and when Redouté, previous to a short absence from Paris, went to take leave of her, she expressed her belief that he would not find her alive at his return, and with tears she solemnly commended her boy to his care. Though he had not attached much weight to her presentiments, yet it was with a somewhat uneasy feeling that, immediately on his return, he went to the house. The door was open; and as he ran up stairs, a sound reached him which struck upon his heart: they were fastening down the coffin of the widow, and in a corner of the room was the little Charles weeping bitterly. Some distant relations stood by the coffin in cold and audible debate as to what was to be done with the child.

"I see nothing for him but the Orphan Asylum," said one.

"Oh, no, no! pray do not send me there," cried the child. "My own dear mamma worked for her bread, and so can I. You do not know how much I can do if you will but try me." At this instant he caught a glimpse of Redouté, and throwing himself into his arms, he exclaimed, "You are come back, dear, good friend, and you will not send me to the asylum!" The artist dressed the poor boy to his bosom.

"Have you no hearts?" he said, indignantly turning to the relations. "This boy shall be my care." And what the most powerful among the powerful had not done, he did—he, the comparatively obscure and humble artist. He secured to his protégé present comfort and future respectability, by teaching him, as soon as possible, to help himself. Charles Bianger became not only his best pupil, but a celebrated painter, making the same use as his noble-minded master of that

knowledge which is power, and of that talent which is one of those possessions described by Aristides in his celebrated maxim, "Heap up no treasures save those which, should shipwreck come, will float with the owner."

From Chambers' Journal.

OUT OF WORK.

BY A WORKING MAN.

WHAT a dreary phrase! How suggestive of hungry cravings and empty cupboards—of restless wanderings to and fro—of gloomy certainties and gloomier anticipations! How it disturbs a man's relations with society! You have lost a vantage-ground. That which a week ago was possible is now impossible. You are become a pariah without intending it; and you eye squalid people with a sort of shudder, half-persuaded that ere long you will be of them. How grudging and envious the world seems to have grown! You fancy that every one is as well aware of your feelings as you are yourself, and whatever discourse may be addressed to you sounds as if pointed with an embittered sting.

Nothing to do is bad enough; but out of work!—hope-stifling words—takes us far beyond, even across the Rubicon of desperation. And yet it is something to know what the phrase really does mean. It is a test to which you look back with feelings similar to those which possess the survivor of a shipwreck or other fearful calamity. You would avoid the trial if possible; but having gone through it, are rather glad than otherwise at having endured it. Such retrospections, it may be said, are not congenial, yet it appears to me that human experience, if reviewed in a right spirit, can hardly fail to convey a useful lesson to those who read its history. My remarks are prompted by what has happened to myself, and may on that account, if on no other, present some slight claims to notice.

Out of work!—how the grim reality haunts you, and how vain the efforts to shake it off! Then you understand fully why Keats speaks of sleep as "comfortable," and join heartily with Sancho Panza in "blessings on the man who invented sleep." The approach of bedtime was as welcome to me then as to a travel-worn pedestrian, and I shall never forget the soothing charm as the unconsciousness of sleep gradually stole over me. Its influence would remain for a few brief moments on first awaking the next morning; but presently a vague apprehension of some impending ill would creep over me, and then, when fully awake, my heart swelled with one huge choking throb, and the leaden gloom settled down on my mind for the rest of the day.

How the moral reacts on the physical! I used to walk briskly; now I went about with a hesitating step, and with a bearing that threatened to degenerate into a slouch. I once believed my principles firm, and my faith in essential points

sound—that my mind was made up as to social rights and moral duties—but the anchor-hold had suddenly given way, and I was adrift on a sea of uncertainties. I began to fancy myself ill-used, and that he was the wisest who, in the general scramble, grasped most. What had I done to be thus summarily deprived of ways and means, while men whom I thought not half so deserving were in full work? It was a hard question to answer under the circumstances, and harder still to acknowledge that I had no right to complain. Again, how many there were who could live in ease and comfort without laborious toil, while I, at the best of times, had nothing but my manual skill and a week's wages between my little household and destitution. Turn it which way I would the idea was a harassing one. The new spirit that possessed me seemed endowed with a resistless power of gravitation.

Society, in my view, had become inordinately selfish: how cleverly it had entrenched itself within laws and statutes, so that if I—bodily anxious without the pale—ventured to help myself to the superabundance of others, it would be under peril of liberty! What right had society to make a law which seemed expressly intended to aggravate my necessitous condition? Was I not the victim of a wanton injustice? Such thoughts as these make the work of temptation very easy for the tempter. Whatever might be society's notions on the matter, mine were, that retaliatory measures would be perfectly justifiable.

I walked about—it seemed to me that I sneaked—seeking for work. The masters surely had leagued against me; how, otherwise, could be explained their malicious negative to my inquiries? There was the roar and bustle of life and traffic in the thoroughfares, which made me loathe my forced idleness. I had no business there; I was one too many in the world. How the aspect of affairs had altered! When in full work, I had not unfrequently considered it a hardship to work so many hours every week for so comparatively small a remuneration. Now, in retrospect, the wage appeared an enviable fortune. Unconsciously to myself I was learning a significant lesson, fraught with profound instruction. Could I have appreciated it then as I do now, what a load of heartache it would have spared me!

Staying at home became irksome to me: home appears somewhat strange to a workman on a working-day, and although my perambulations might be fruitless, it seemed that I was less idle when so occupied than when loitering within doors. Some mornings a faint revival of hope would make me feel certain of getting work in the course of the day, and I started forth animated by all my former confidence. Unsubstantial trust! The first disappointment brought back all my irresolutions, all my bitter forebodings. I had made up my mind to brave it out, but the effort was too much for me. By a strange contradiction, too, notwithstanding my eager desire to be

again employed, there were times that I shrank from the thought of work as an owl shuns the sunlight.

How often the few remaining dollars were counted!—this was in New York. I despised myself for calculating on how little my family could be made to exist for a given time. My heart grew hard, and I often shuddered lest it should never soften again. How slowly time passed! the days had grown longer on purpose to torment me, and the thousand bewildering thoughts that preyed upon me had ample leisure for their work.

Facilis descensus averni; the phrase is as true now as when originally penned two thousand years ago. When first cast loose, I had felt sure of readily obtaining employment in my regular trade; the idea of condescending to inferior occupation was not to be for a moment entertained; it would damage my respectability, and disturb my self-esteem. But as the weary time wore on, the imperative necessity of providing food for a certain number of mouths every day left no alternative, no possibility of over-scrupulousness in conventionalities. Respectability soon ceased to be a bug-bear; if cabinet-making was not to be had, I would take carpentry or jobbing-work. These failing, I next called on the shipwrights, but with no better success; and then I bethought myself of trying other resources. It had always been one of my purposes and pleasures to see as much of other trades as possible, to visit and inspect all sorts of workshops, by which means their most obvious details had become familiar to me. I knew enough of shoemaking, bookbinding, printing, and some other trades, to be able to earn small wages at any one of them. Should these also fail, it was all but certain that some sort of rude labor could be hunted up, which would furnish at least a pittance till more prosperous days came round again. My heart often failed me while following out this new quest, yet I did at last get through my task of seeking any kind of work. In some respects it was a repulsive task, for in the lower grade of shops and places of work I found a lower class of workmen; men on whom vice had set its mark, in whom depravity of mind and heart had become habitual, whose talk was as coarse as their looks. "Misery," says Shakspeare, "acquaints a man with strange bedfellows," and the dread of being compelled to mingle with debased associates increased my apprehensions. Necessity, however, has no law; a needy man must work, if not where he would, then where he can. It is a critical time; for there is more or less danger that contact and custom may lead a man to "put up" with his altered position, and gradually assimilate himself to it. Many a man in such circumstances is apt to say, "What's the use of trying to keep a fair front to the world? Who cares whether I sink or swim? Let things take their course." However, on the occasion here more particularly referred

to, my asking for work proved fruitless ; whether it was that I looked too dejected or too unpractised, no one would employ me.

Who shall describe the prostration of heart and soul with which a man who has been wandering the whole day in a vain seeking for occupation returns at night-fall to his home ? The dispiriting is occasionally so extreme, that for a time the solaces which there await him fail of their effect. It is in such circumstances that a man learns to appreciate rightly the value of a good wife ; one to whom he can say with truth—

When pain and anguish wring the brow,
A ministering angel thou.

If she be kind and considerate, she will know that now is the time to display that affection which includes no thought of self in its warm desire for another's happiness. True it is that she has her own share of the general trouble to bear ; but she has not been worn out by a desponding walk ; the rebuffs which solicitation seldom fails to evoke have not fallen on her personally ; besides which, women are less irritated by adverse fortune than men. If, on such occasions, the wife will strive in sincerity to become a " ministering angel," how soon will her gentle words soothe the chafed spirit of her husband ! With what blessedness her sympathy reanimates his hope and subdues his impatience ! How his bitter thoughts take to flight as she suggests some comforting anticipation, and a brightening faith takes the place of despair ! Ere long, the sustaining influences overmaster him, his children again claim his notice, and share his smile, and the dejected man finds in the light of home a solace for all his disquietude ; so true is it that there is no condition of life without its bright side, no adverse circumstance without its compensating quality. Herein the married man is more favorably situated than the unmarried—the one has a sustaining resource which the other knows nothing of. But, on the other hand, no fate can be more deplorable than that of a man out of work with a comfortless home, a careless wife, and consumacious children.

It must be confessed that the general aspect of such a season of trial as above indicated is sufficiently discouraging ; the downward tendency appears to be inevitable. But there is a remedy ; and this remedy is to be found in the spirit of self-reliance—in firm moral principle. And it will be a lasting satisfaction to me that I was enabled to apply this remedy, as a fragment of my experience may serve to exemplify. The mental and physical condition which I have endeavored to portray in the foregoing paragraphs was not permanent—it was but the stunning effect which the natural reaction would presently dissipate.

One evening, after a long spell of involuntary idleness, I was seated thinking over my prospects, when all at once the thought struck me, " If no one will employ you, set yourself to work." No sooner was the thought formed, than I started up to act upon it ; one side of our kitchen was occu-

pied by my bench ; I got it into working trim, sharpened my tools, and sawed a pair of ends for a chiffonier out of a mahogany slab which I had by me. These were planed up and properly squared before I went to bed that night ; and wondrous was the effect which manual labor produced. " Fling but a stone, the giant dies," says the poet, and most truly ; for, as my limbs fell into their accustomed movements, and the shavings whistled from my plane, the anxious cares forsook me—and hope resumed her sway, strong in the vigor of self-help. It is true the prospect of profit was but slender. That, however, was not the prime advantage, which lay in the restoration of my mind to its healthy tone : still, in a large city purchasers are always to be found for fabricated wares, and a small gain is better than complete inaction. Besides which, a man who keeps himself employed is more ready to improve such opportunities as fall in his way, than one whose working habits are weakened by disuse.

Idleness is by all means to be eschewed, and I would urge this point strongly on the attention of working-men—my late companions. The resource which I adopted is such an obviously natural one, as to have since caused me much surprise that it did not occur to me with distinctness before the second week of my wanderings. And mine is no exceptional case ; what I did may be done by others. There are few trades at which a man cannot work at his home—that is, if he has the will to do so. If he will only exercise a proper thrift while in work, he will not lack the means of purchasing materials on which to employ himself when necessity compels. Let those who may feel disposed to undervalue such apparently insignificant means remember that it is easier to obey a fixed habit, than to recover it if broken or lost ; and no purpose, however slight, is to be despised which may serve to keep a man out of the way of evil associates or temptation. It would be well, also, if every artificer would learn something of other trades as well as his own, as he would thereby not only multiply his resources, but be better able to judge of fitting occupations for his children.

There is no reason either, as I afterwards had occasion to prove, why the days spent in looking for work should be altogether wasted. For, without losing sight of the main chance, I took occasion to visit the noteworthy parts of the city, public buildings, wharves, docks, and, when practicable, factories and workshops. Nor did I confine myself to the town, but walked a few miles in various directions into the country, where, if nothing else was to be seen, there was always natural scenery, whose influence on the mind is ever quieting and elevating.

Lastly, in integrity of character consists the most potential remedy ; it is the spring of all the rest. It is that which gives and maintains the energizing impulse. A wise writer has observed that " a straight line is the shortest in morals as well as in geometry." And so it is, even in a calculative point of view. The steady, honest

workman is less exposed to loss of work or dismissal than he who has no settled conviction as to what is right or wrong ; he is better able to keep money in his pocket, and to provide for his children. Here is so much clear gain ; but when we come to higher views, how immeasurably superior does moral rectitude appear—that which springs from the soul, and aims at something beyond mere pecuniary advantage ! And such a condi-

tion of mind and heart is possible to every man. I would endeavor to impress it on all who shall read what I have here written, as an unfailing resource throughout the changeful circumstances of life. Possessed of that spirit of eternal justice which does as it would be done unto, a man will find that "out of work" is divested of half its bitterness, while a double blessing attends the sweets of prosperity.

MY YOUNGEST.

BY REV. DR. SHARP.

THEY say my youngest is a pet,
And has too much her way ;
It can't be so, I think, and yet
I would not dare say nay.

For if my memory serve me right,
And truth must be confessed,
Each youngest that has blest my sight
Has seemed to be loved best.

Thus one by one has shared the love
Of a fond father's heart ;
The youngest tenderer thoughts could move
Than those who had the start.

The oldest was to me most dear,
So was the next—so all ;
The youngest came my age to cheer—
On her my love did fall.

'T is not that she is loved the most,
But she is loved the last ;
The youngest may my fondness boast,
But so could all the past.

My youngest, then, is not a pet,
More than each child before ;
I think so, certainly—and yet
They say I love her more.

PERSEVERANCE.

A SWALLOW in the spring,
Came to our granary, and 'neath the eaves
Essayed to make a nest, and there did bring
Wet earth, and straw, and leaves.

Day after day she toiled
With patient heart ; but ere her work was crowned,
Some sad mishap the tiny fabric spoiled,
And dashed it to the ground.

She found the ruin wrought,
But not cast down, forth from the place she flew,
And, with her mate, fresh earth and grasses brought,
And built her nest anew.

But scarcely had she placed
The last soft feather on its ample floor,
When wicked hand, or chance, again laid waste,
And wrought the ruin o'er.

But still her heart she kept,
And toiled again, and last night, hearing calls,
I looked, and lo ! three little swallows slept
Within the earth-made walls.

What truth is here, O man !
Hath hope been snitten in its early dawn ?
Have clouds o'ercast thy purpose, trust or plan ?
Have FAITH and struggle on.

Nat. Intel.

SOUTHEY'S INTENTION OF COMING TO AMERICA.

—In the first number of "The Life and Correspondence of Robert Southey," published by the Harpers, occurs the following passage, disclosing the fact that the poet, early in life, contemplated taking up his residence in the United States. Writing to a Mr. Bedford, under date of July 30, 1794, he says :

" 'T is my intention soon to join Mr. — in Wales, then proceed to Edmund Seward, seriously to arrange with him the best mode of settling in America ; my brother Thomas will gladly go with us, and perhaps two or three more of my most intimate friends. In this country I must either sacrifice happiness or integrity. * * * I shall inscribe Joan of Arc to you ; it will be my legacy to this country, and may, perhaps, preserve my memory in it. Many of my friends may blame me for so bold a step, but as many encourage me ; and I want to raise money enough to settle me across the Atlantic. If I have leisure to write there, my stock of imagery will be much increased."

To the literary man the speculation is a curious one, what Southey might have produced if he had carried out his intention of making this the country of his residence. Our immense rivers and lakes, our mountains and cataracts, so infinitely beyond those of Europe in number and grandeur, would doubtless have made a profound impression upon him, and possibly have given to the world a poem commensurate with their beauty and sublimity.—*Buffalo Courier.*

JEWISH SCRIPTURE MSS.—In transcribing the Sacred Writings, it has been a constant rule with the Jews, that whatever is considered as corrupt shall never be used, but shall be burnt, or otherwise destroyed. A book of the law, wanting but one letter, with one letter too much, or with an error in one single letter, written with anything but ink, or written on parchment made of the hide of an unclean animal, or on parchment not purposely prepared for that use, or prepared by any but Israelites, or on skins of parchment tied together by unclean string, shall be held to be corrupt ; that no word shall be written without a line first drawn on the parchment, no word written by heart, or without having been pronounced orally by the writer ; that before he writes the name of God, he shall wash his pen ; that no letter shall be joined to another ; and that if the blank parchment cannot be seen all around the letter, the roll shall be corrupt. There are certain rules for the length and breadth of each sheet, and for the space to be left between each letter, each word, and each section. These Maimonides mentions as some of the principal rules to be observed in copying the sacred rolls. Even to this day it is an obligation on the persons who copy the sacred writings for the use of the synagogue to observe them. Those who have not seen the rolls used in the synagogues, can have no conception of the exquisite beauty, correctness, and equality of the writing.—*Carpenter's Popular Lectures.*

From the Quarterly Review.

1. *General Description of the Britannia and Conway Tubular Bridges on the Chester and Holyhead Railway.* Published, with the permission of Robert Stephenson, Civil Engineer, by a Resident Assistant. Pp. 34. London. 1849.
2. *An Account of the Construction of the Britannia and Conway Tubular Bridges, with a complete History of their Progress, from the conception of the Original Idea to the conclusion of the elaborate Experiments which determined the exact Form and Mode of Construction ultimately Adopted.* By WILLIAM FAIRBAIRNS, C. E., Memb. Inst. Civil Engineers; Vice-President of the Literary and Philosophical Society, Manchester, &c. London. 1849.

In continuation of our sketch of the practical working of the London and North-western Railway, we now offer to our readers a short descriptive outline of the aerial passages through which it is proposed, by the directors of the Chester and Holyhead Railway, that the public shall, without cuneiform sustentation, fly across the Menai Straits.

We shall divide our subject into the following compartments:—

1. The principle upon which the Britannia Bridge is constructed.
2. The mode of its construction.
3. The floating of its tubes.
4. The manner in which they were subsequently raised.
5. Mr. Fairbairns' complaint that Mr. Robert Stephenson has deprived him "of a considerable portion of the merit of the construction of the Conway and Britannia Bridges."

1. PRINCIPLE OF THE PROPOSED PASSAGE.—In the construction of a railway from Chester to Holyhead, the great difficulty which its projectors had to contend with was to discover by what means, if any, long trains of passengers and of goods could, at undiminished speed, be safely transported across that great tidal chasm which separates Carnarvon from the island of Anglesey. To solve this important problem the company's engineer was directed most carefully to reconnoitre the spot; and as the picture of a man struggling with adversity has always been deemed worthy of a moment's attention, we will endeavor to sketch a rough outline of the difficulties which one after another must have attracted Mr. Robert Stephenson's attention, as, on the Anglesey side of the Menai Straits, he stood in mute contemplation of the picturesque but powerful adversaries he was required to encounter.

Immediately in his front, and gradually rising towards the clouds above him, were the lofty snow-capped mountains of Snowdon, along the sides of which, or through which, the future railroad, sometimes in bright sunshine and sometimes in utter darkness, was either to meander or to burrow.

Beneath him were the deep Menai Straits, in length above 12 miles, through which, imprisoned between precipitous shores, the waters of the

Irish Sea and of St. George's Channel are not only everlasting vibrating backwards and forwards, but at the same time, and from the same cause, are progressively rising or falling from 20 to 25 feet with each successive tide, which, varying its period of high water every day, forms altogether an endless succession of aqueous changes.

The point of the Straits which it was desired to cross—although broader than that about a mile distant, preoccupied by Mr. Telford's Suspension-bridge—was of course one of the narrowest that could be selected; in consequence of which the ebbing and flowing torrent rushes through it with such violence that except where there is backwater, it is often impossible for a small boat to pull against it; besides which, the gusts of wind which come over the tops, down the ravines, and round the sides of the neighboring mountains, are so sudden, and occasionally so violent, that it is as dangerous to sail as it is difficult to row; in short, the wind and the water, sometimes playfully, and sometimes angrily, seem to vie with each other—like some of Shakespeare's fairies—in exhibiting before the stranger the utmost variety of fantastic changes which it is in the power of each to assume.

But, in addition to the petty annoyances which air, earth, and water could either separately or conjointly create, the main difficulty which Mr. Stephenson had to encounter was from a new but irresistible element in nature, an "orbis veteribus incognitus," termed in modern philosophy *The First Lord*, or, generically, *The Admiralty*.

The principal stipulation which the requirements of war, and the interests of commerce, very reasonably imposed upon science was that the proposed passage across the Menai Straits should be constructed a good hundred feet above high-water level, to enable large vessels to sail beneath it; and as a codicil to this will it was moreover required that, in the construction of the said passage, neither scaffolding nor centring should be used—as they, it was explained, would obstruct the navigation of the Straits.

Although the latter stipulation, namely, that of constructing a large superstructure without foundation, was generally considered by engineers as amounting almost to a prohibition, Mr. Stephenson, after much writhing of mind, extricated himself from the difficulty by the design of a most magnificent bridge of two cast iron arches, each of which commencing, or, as it is termed, springing, 50 feet above the water, was to be 450 feet broad and 100 feet high—the necessity for centring being very ingeniously dispensed with by connecting together the half arches on each side of the centre pier, so as to cause them to counterbalance each other like two boys quietly seated on the opposite ends of a plank supported only in the middle. This project, however, which on very competent authority has been termed "one of the most beautiful structures ever invented," the Admiralty rejected, because the stipulated height of 100 feet would only be attained under the crown of

the arch, instead of extending across the *whole* of the water-course. It was also contended that such vast cast iron arches would take the wind out of vessels' sails, and, as a further objection, that they would inevitably be much affected by alternations of temperature.

Although this stern and unanticipated demand, that the passage *throughout its whole length* should be of the specified height, appeared to render success almost hopeless, it was evidently useless to oppose it. The man of science had neither the power nor the will to contend against men of war, and accordingly, Mr. Stephenson felt that his best, and indeed only, course was—like poor little Oliver Twist when brought before his parish guardians—“**TO BOW TO THE BOARD;**” and we beg leave to bow to it too, for, gnarled as were its requirements, and flat as were its refusals, it succeeded, at a cost to the company to which we will subsequently refer, in effecting two great objects;—first, the maintenance forever, for the purposes of war and commerce, of an uninterrupted passage for vessels of all nations sailing through the Menai Straits; and, secondly, the forcing an eminent engineer to seek until he found that which was required; in fact, just as a collision between a rough flint and a piece of highly-tempered steel elicits from the latter a spark which could not otherwise have appeared, so did the rugged stipulations of the Admiralty elicit from science a most brilliant discovery, which possibly, and indeed probably, would never otherwise have come to light.

But to return to the Anglesey shore of the Menai Straits.

When Mr. Stephenson, after many weary hours of rumination in his London study, beheld vividly portrayed before him the physical difficulties with which he had to contend in the breadth and rapidity of the stream; when he estimated not only the ordinary violence of a gale of wind, but the paroxysms or squalls, which, in the chasm before him, occasionally—like the Erle King terrifying the “poor baby”—convulsed even the tempest in its career; and, lastly, when he reflected that, in constructing a passage so high above the water, he was to be allowed neither *centrings*, *scaffoldings*, nor *arches*, it occurred to him, almost as intuitively as a man when his house is on fire at once avails himself of the means left him for escape, that the only way in which he could effect his object was by constructing, in some way or other, at the height required, a straight passage, which, on the principle of a common beam, would be firm enough to allow railway trains to pass and repass without oscillation, danger, or even the shadow of risk; and it of course followed that an aerial road of this description should be composed of the strongest and lightest material; that its form should be that best suited for averting the wind; and, lastly, that no expense should be spared to protect the public from the awful catastrophe that would result from the rupture of this “baseless fabric” during the passage over it of a train.

It need hardly be stated that, whatever might be the result of Mr. Stephenson's abstract calculations on these points, his practical decision was one that necessarily involved the most painful responsibility; which, indeed, if possible, was increased by the reflection that the directors of the Chester and Holyhead Railway placed such implicit confidence in his judgment and caution that they were prepared to adopt almost whatever expedient he might, on mature consideration, recommend.

In war, the mangled corpse of the projector of an enterprise is usually considered a sufficient atonement for his want of success; indeed, the leader of the forlorn-hope, who dies in the breach, is not only honorably recollected by his survivors, but by a glorious resurrection occasionally lives in the history of his country; but when a man of science fails in an important undertaking involving the capital of his employers and the lives of the public, in losing his reputation he loses that which *never can be revived!*

Unawed, however, by these reflections, Mr. Stephenson, after mature calculations—in which his practical experience of iron ship-building must have greatly assisted him—confidently announced, first to his employers and afterwards to a committee of the House of Commons, by whom he was rigidly examined, that he had devised the means of accomplishing that which was required; and, further, that he was ready to execute his design.

The great difficulty had been in the conception and gestation of his project; and thus his severest mental labor was over before the work was commenced, and while the stream, as it hurried through the Menai Straits, as yet saw not on its banks a single workman.

The outline or principle of his invention was, that the required passage of passengers and goods across the Conway and Menai Straits should be effected through low, long, hollow, straight tubes—*one for up-trains, the other for down ones*—composed of wrought iron “boiler-plates,” firmly riveted together. He conceived that, in order to turn aside the force of the wind, these tubes ought, like common water-pipes, to be made oval or elliptical, and that they should be constructed at their final elevation on temporary platforms, upheld by chains, which—notwithstanding the evident objection, in theory as well as in practice, to an admixture of movable and immovable parts—might of course subsequently be allowed to give to the bridge an auxiliary support, although Mr. Stephenson's experience enabled him to declare to the committee of the House of Commons very positively that no such extra assistance would be required. He proposed that the extremities of the tubes should rest on stout abutments of masonry, terminating the large embankment by which from either side of the country each was to be approached; the intermediate portions of the aerial passage reposing at the requisite elevation upon three massive and lofty towers. Of these one was to be constructed at high-water mark on each side of the Straits. The third, no less than 210 feet

in height, was to be erected as nearly as possible in the middle of the stream, on a tiny rock, which, covered with 10 feet of water at high tide, although at low water it protruded above the surface, had long been considered as a grievance by boatmen and travellers incompetent to foresee the important service it was destined to perform.

The four lengths of each of the twin tubes, when supported as described, were to be as follows:—

Feet.	
274	From Carnarvon embankment, terminating in its abutment, to the tower at high-water mark
472	From the latter tower to Britannia tower, situated upon Britannia rock in the middle of the stream
472	From Britannia tower to that at high-water mark on the Anglesey shore
274	From the Anglesey tower to the abutment terminating the embankment which approaches it
1492	Total length of each tube
2984	Total length of both tubes

Notwithstanding the bare proposal of this magnificent conception was unanswerable evidence of the confidence which the projector himself entertained of its principles, yet, in justice to his profession, to his employers, to the public, as well as to himself, Mr. Stephenson deemed it proper to recommend that, during the construction of the towers and other necessary preparations, a series of searching experiments should be made by the most competent persons that could be selected, in order to ascertain the precise shape and thickness of the immense wrought-iron aerial galleries that were to be constructed, as also the exact amount of weight they would practically bear. In short, the object of the proposed experiments was to insure that neither more nor less materials should be used than were absolutely requisite, it being evident that every pound of unnecessary weight that could be abstracted would, *pro tanto*, add to the strength and security of the structure.

Although it was foreseen, and very candidly foretold, that these experiments would be exceedingly expensive, the directors of the company readily acceded to the requisition, and accordingly, without loss of time, the proposed investigation was, at Mr. Stephenson's recommendation, solely confided to Mr. William Fairbairn, a ship-builder and boiler-maker, who was justly supposed to possess more practical experience of the power and strength of iron than any other person that could have been selected. Mr. Fairbairn, however, after having conducted several very important investigations, deemed it necessary to apply to Mr. Stephenson for permission "to call in the aid and assistance of Mr. Hodgkinson," a powerful mathematician, now professor in the University of London, and whom Mr. Stephenson, in his report to the directors, dated Feb. 9, 1846, declared to

be "distinguished as the first scientific authority on the strength of iron beams." To these two competent authorities Mr. Stephenson subsequently added one of his own confidential assistants, Mr. Edwin Clark, a practical engineer of the highest mathematical attainments, who regularly recorded and reported to Mr. Stephenson the result of every experiment—to whom the construction and lifting of the Britannia galleries were eventually solely intrusted—and by whom an elaborate description of that work is about to be published.*

The practicability of Mr. Stephenson's hollow-beam project having thus, at his own suggestion, been subjected to a just and rigid investigation, we shall have the pleasure of briefly detailing a few of the most interesting and unexpected results; previous, however, to doing so, we will endeavor to offer to those of our readers who may not be conversant with the subject a short practical explanation of the simple principle upon which a beam, whether of wood or iron, is enabled to support the weight inflicted upon it.

If human beings can but attain what they desire, they seldom alloy the gratification they receive by reflecting—even for a moment—on the sufferings which their fellow-creatures may have undergone in procuring for them the luxury in question. Dives sometimes extols his coals, his wine, his food, his raiment, his house, his carriages, and his horses, and yet how seldom does he either allude to or ruminate on the hardships and misery which, for his enjoyment, have been endured in coal-pits, lead-mines, sugar-plantations, cotton-fields, manufactories, smelting-houses, in horticultural and agricultural labor, by the sons and daughters of Lazarus!—and if this heartless apathy characterizes human beings with reference to each other, it may naturally enough be expected that, provided *inanimate* objects answer our purpose, we think not of them at all. For instance, if a beam without bending or cracking bears—as it usually does—the weight which the builder has imposed upon it, who cares how it suffers or where it suffers?

For want, therefore, of a few moments' reflection on this subject, most people, in looking up at a common ceiling-girder, consider that the corresponding upper and lower parts thereof must at all events, *pari passu*, suffer equally; whereas these upper and lower strata suffer from causes as diametrically opposite to each other as the climates of the pole and of the equator of the earth; that is to say, the top of the beam throughout its whole length suffers from severe compression, the bottom from severe extension, and thus, while the parti-

* With the sanction and under the immediate supervision of Robert Stephenson, Civil Engineer. A Description of the Britannia and Conway Tubular Bridges; including an Historical Account of the Design and Erection, and Details of the Preliminary Experiments, with the Theories deduced from them. Also, General Inquiries on Beams, and on the Application of Riveted Wrought-iron Plates to Purposes of Construction; with Practical Rules and Deductions, illustrated by Experiments. By Edwin Clark, Assistant Engineer. With Diagrams and a folio volume of Plates and Drawings, illustrative of the Progress of the Works. London: Published for the Author, by John Weale, 59, High Holborn, 1849.

cles of the one are violently jammed together, the particles of the other are on the point of separation; in short, the difference between the two is precisely that which exists between the opposite punishments of vertically crushing a man to death under a heavy weight, and of horizontally tearing him to pieces by horses!

Now this theory, confused as it may appear in words, can at once be simply and most beautifully illustrated by a common small straight stick freshly cut from a living shrub.

In its natural form, the bark or rind around the stick is equally smooth or quiescent throughout; whereas, if the little bough firmly held in each hand be bent downwards, so as to form a bow, or, in other words, to represent a beam under heavy pressure, two opposite results will instantly appear—namely, the rind in the centre of the upper half of the stick will, like a smile puckering on an old man's face, be crumpled up; while on the opposite side, immediately beneath, it will, like the un wrinkled cheeks of Boreas, be severely distended—thus denoting, or rather demonstrating, what we have stated, namely, that beneath the rind the wood of the upper part of the stick is severely compressed, while that underneath it is as violently stretched; indeed, if the little experiment be continued by bending the bow till it breaks, the splinters of the upper fracture will be seen to interlace or cross each other, while those beneath will be divorced by a chasm.

But it is evident on reflection that these opposite results of compression and extension must, as they approach each other, respectively diminish in degree, until in the middle of the beam, termed by mathematicians, "its neutral axis," the two antagonist forces, like the anger of the Kilkenny cats, or, rather, like still-water between tide and back-stream, become neutralized, and, the laminæ of the beam consequently offering no resistance either to the one power or to the other, they are literally useless.

As, therefore, it appears that the main strength of a beam consists in its power to resist compression and extension, and that the middle is comparatively useless, it follows that, in order to obtain the greatest possible amount of strength, the given quantity of material to be used should be accumulated at the top and bottom, where the strain is the greatest; or, in plain terms, the middle of the beam, whether of wood or iron, should be bored out. All iron girders, all beams in houses, in fact all things in domestic or naval architecture that bear weight, are subject to the same law.

The reader has now before him the simple philosophical principle upon which Mr. Stephenson, when he found that he was to be allowed neither scaffolding, centring, nor arches, determined to undertake to convey at undiminished speed the Chester and Holyhead Railway's passenger and goods traffic across the Conway and Menai Straits through hollow tubes, instead of attempting to do so upon solid beams; and as a striking and per-

haps a startling exemplification of the truth of his theory, it may be stated that although his plate-iron galleries, suspended by the tension as well as supported by the compression of their materials, have, on mature calculations, been constructed to bear nearly nine times the amount of the longest railway train that could possibly pass through them, (namely, one of their own length,) yet if, instead of being hollow, they had been a *solid* iron beam of the same dimensions, they would not only have been unable to sustain the load required, but would actually have been bent by—or, metaphorically, would have fainted under—their own weight.

Experiments.—One of the most interesting and important results of the preliminary investigations so ably conducted by Mr. Fairbairn and his friend and associate Mr. Hodgkinson, was the astonishing difference found to exist between the power of cast and that of wrought iron to resist compression and extension. From the experience which engineers and builders had obtained in imposing weights upon cast iron girders of all shapes and sizes, it had long been considered almost a mechanical axiom, that iron possessed greater power to resist compression than extension; whereas Mr. Fairbairn's experiments, to his surprise as well as to that of all who witnessed them, most clearly demonstrated that, after bearing a certain amount of weight, the resisting properties of cast and of wrought iron are diametrically opposite; in short, the results in figures proved to be nearly as follows:—

Cast iron can resist per square inch—

Compression of from 35 to 49 tons.

Extension of " 3 " 7 "

Wrought iron can resist per square inch—

Compression of from 12 to 13 tons.

Extension of " 16 " 18 "

The unexpected results thus obtained were of incalculable practical value; for, if the preliminary experiments proposed by Mr. Stephenson had not been made, he, Mr. Fairbairn, Mr. Hodgkinson, Mr. Clark, and indeed all the eminent engineers and mathematicians of the present day, would—on the correct principle of everywhere adjusting the thickness of iron to the force it has to resist—have erroneously concurred in recommending that the proposed *wrought* iron tubes for crossing the Conway and Menai Straits should be constructed stronger at bottom than at top, instead of, as it appears they ought to be, stronger at top than at bottom—in consequence of which error the aerial gallery would have been improperly weakened in one part by an amount of iron which would have unscientifically overloaded it at another, and thus, like Falstaff's "increasing belly and decreasing legs," the huge mass, with diminished strength, would have labored under unnecessary weight.

By continuing, with great patience and ability, the experiments above referred to, it was finally ascertained that the relative strength of *wrought* iron in the top and bottom of the tubes should be in the proportion of about 5 to 4; and whereas,

had they been constructed of *cast* iron, these proportions would have been reversed in the higher proportion of nearly 5 to 1, it may reasonably be asked why, if the latter material bears compression so much better than the former, it was not selected for the *top* of the tube? In theory, this adjustment of the two metals to the force which each was peculiarly competent to resist, would have been perfectly correct. It, however, could not practically be effected, from the difficulty of casting as well as of connecting together plates ten and twelve feet in length of the very slight thicknesses required. Mr. Stephenson, therefore, adhered to his determination to make the whole of his aerial galleries of wrought iron; and we may here observe that, to ensure the public from accident, he further resolved that the amount of the force of extension upon them should be limited to only one third of their power of resistance, that of compression to one half—the reason of the difference being that, inasmuch as any little flaw in the iron would infinitely more impair its power to resist extension than compression, it was evidently safer to approximate the limits of the latter than of the former.

As the exact strength of a hollow wrought iron tube, such as was proposed, was unknown to engineers, it was deemed necessary by Mr. Stephenson that its *form* as well as the disposition of its materials should be correctly ascertained. This portion of the investigation Mr. Fairbairn and his colleagues with great care and ability conducted by subjecting tubes of different shapes to a series of experiments, the results of which were briefly as follows:

1. *Cylindrical tubes*, on being subjected to nine very severe trials, failed successively by collapsing at the top; or, in other words, by evincing inability to resist compression. The tube, losing its shape, gradually became elongated or lantern-jawed, while the two extremities were observed to flatten or bulge out sideways—besides which the ends, which, for precaution sake, rested on concentric wooden beds, invariably bent inwards.

2. *Elliptical tubes*, with thick plates riveted to the top and bottom, had been particularly recommended for experiment by Mr. Stephenson. These tubes, under heavy pressure, displayed greater stiffness and strength than round or cylindrical ones; but, after being subjected to a variety of torturing experiments of a most ingenious description, they all evinced comparative weakness in the top to resist compression. They likewise exhibited considerable distortions of form.

3. A family weakness in the head having been thus detected in all models circular at bottom and top, *rectangular tubes* were in their turn next subjected to trial. As they at once appeared to indicate greater strength than either of the other two forms had done, a very elaborate and interesting investigation was pursued by Mr. Fairbairn, who, by the light of his experiments, soon satisfied himself of the superiority of this form over the other

two; and as every successive test confirmed the fact, he continued his search with an energy that has only since been equalled by the American judge, who, it is said, on arriving at California, deserted the bench for "the diggings."

The following is an abstract of the important result of about forty experiments made by Messrs. Fairbairn, Hodgkinson, and Clark, on the comparative strength of circular, elliptical, and rectangular tubes:—*Circular*, 13; *Elliptical*, 15; *Rectangular*, 21.

As soon as the rectangular was, by the investigation recommended by Mr. Stephenson, clearly ascertained to be the best form of hollow tube that could be selected, the next important problem to be determined by experiment was what amount of strength should be given to it; or, in other words, what should be the thickness of its top and bottom, in which, as we have shown, consisted its main power.

The investigations on this subject soon demonstrated that if, instead of obtaining this thickness by riveting together two or three layers of plates, they were, on the principle of the beam itself, placed in horizontal strata a foot or two asunder—the included hollow space being subdivided by small vertical plates into rectangular passages or flues extending along the whole top as well as bottom of the tube—an immense addition of strength, with very nearly the same weight of material, would be obtained.

This adaptation proving highly advantageous, it was deemed advisable by Mr. Stephenson that further experiments should be made by Mr. Fairbairn and his colleagues to determine finally the precise form and proportions of the great tubes. For this object an entirely new model tube, one sixth of the dimensions of the intended Britannia Bridge, was very carefully constructed; and the cellular tops and bottoms thereof, as well as the sides, were subjected to a series of experiments until the exact equilibrium of resistance to compression and extension, as also the variations in the thicknesses of the plates in the several parts of the tube as they approached or receded from different points of support, were most accurately ascertained.

In these as well as in all the previous experiments the trial tubes were loaded till they gave way—the results being accurately recorded and transmitted by Mr. Clark to Mr. Stephenson, who in return confidentially assisted Mr. C. with his opinion and advice. From the fibrous nature of wrought iron, as compared with the crystalline composition of the cast metal, the tendency to rupture in most of these experiments was slow and progressive. Destruction was never instantaneous, as in cast iron, but it advanced gradually; the material, for some time before absolute rupture took place, emitting an unmistakable warning noise; just as a camel, while kneeling on the burning sandy desert, and while writhing his head from one side to the other, snarls, grunts, grumbles

and groans louder and louder, as his swarthy turban-headed owners keep relentlessly adding package after package to his load.

Although it can mathematically be shown that the two sides of a thin hollow tube are of but little use except to keep the tops and bottoms at their duty—the power of resistance of the latter being, however, enormously increased by the distance that separates them—it was nevertheless necessary to ascertain the precise amount of lateral strength necessary to prevent the aerial gallery writhing from storms of wind. The riveting process was likewise subjected to severe trial, as also the best form and application of the slender ribs termed "angle-irons," by which not only the plates were to be firmly connected, but the tube itself materially strengthened—in fact, the angle-irons were to be its bones, the thin plate-iron covering being merely its skin.

Mr. Stephenson had two main objects in instituting the investigations we have detailed. First, to determine by actual experiment what amount of strength *could* be given to his proposed galleries; and, secondly, of that maximum *how much* it would be proper for him to exert. And as his decisions on these subjects will probably be interesting to our readers, most especially to that portion of them whose fortunes or fate may doom them occasionally to fly through his baseless fabric, we will endeavor very briefly to explain the calculations on which they appear to have been based.

As a common railway train weighs upon an average less than a ton per foot—as the greatest distances between the towers of the Britannia Bridge amount each to 460 feet—and as it is a well-known mathematical axiom among builders and engineers that any description of weight spread equally along a beam produces the same strain upon it as would be caused by half the said weight imposed on the centre—it follows that the maximum weight which a monster train of 460 feet (an ordinary train averages about half that length) could at one time inflict on any portion of the unsupported tube would amount to 460 tons over the whole surface, or to 230 tons at the centre.

Now, to ensure security to the public, Mr. Stephenson, after much deliberation, determined that the size and adjustment of the iron to be used should, according to the experiments made and recorded, be such as to enable the aforesaid unsupported portions of the tube (each 460 feet in length) to bear no less than 4000 tons over its whole surface, or 2000 tons in the centre, being nine times greater than the amount of strength necessarily required; and as the results—unexpected as well as expected—of the searching investigation which had been instituted, incontestably proved that this Herculean strength could be imparted to the galleries without the aid of the chains, which, even as an auxiliary, had been declared unnecessary—and as Mr. E. Clark had very cleverly ascertained that it would be cheaper

to construct the tubes on the ground than on the aerial platform as first proposed—Mr. Stephenson determined, on mature reflection, to take upon himself the responsibility of reporting to the directors of the Chester and Holyhead Railway that this extra catenary support, which would have cost the company 150,000*l.*, was wholly unnecessary. Indeed, such was the superabundance of power at his command, that without adding to the weight of the rectangular galleries, he could materially have strengthened them by using at their top and bottom circular flues instead of square ones, which, merely for the convenience of cleaning, &c., were adopted, although the former were found on experiment to bear about 18 tons to the square inch before they became crushed, whereas the latter could only support from 12 to 14 tons.

But the security which Mr. Stephenson deemed it necessary to ensure for the public may further be illustrated by the following very extraordinary fact:—It has been mathematically demonstrated by Messrs. Hodgkinson and Clark, as well as practically proved by Mr. Fairbairn—indeed, it will be evident to any one who will go through the necessary calculations on the subject—that the strain which would be inflicted on the iron-work of the longest of Mr. Stephenson's aerial galleries by a monster train sufficient to cover it from end to end, would amount to six tons per square inch;—which is exactly equal to the constant stress upon the chains of Telford's magnificent suspension Menai Bridge when, basking in sunshine or veiled in utter darkness, it has nothing to support but its own apparently slender weight!

Lateral strength.—The aerial galleries having, as above described, been planned strong enough for the safe conveyance of goods and passengers at railway speed, it became necessary to calculate what lateral strength they would require to enable them to withstand the storms, tempests, squalls, and sudden gusts of wind to which from their lofty position they must inevitably be exposed.

The utmost pressure of the hurricane, as estimated by Smeaton—but which is practically considered to be much exaggerated—amounts to about 46 lbs. to the square foot; and this, on one of the larger tubes (460 feet long by an average of rather less than 30 feet high) would give a lateral pressure of 277 tons over the whole surface, or of 133 tons on the centre.

To determine the competency of the model tube to resist proportionate pressure to this amount, it was turned over on its side; and, having by repeated experiments been loaded and overloaded until it was crushed, the result fully demonstrated to Mr. Stephenson's satisfaction its power to resist, according to his desire, a lateral pressure more than five times greater than that which it is in the power of the hurricane to inflict.

The experimental information required by Mr. Stephenson having, by the zeal and ability of Mr. Fairbairn, Mr. Hodgkinson, and Mr. Clark, been

finally obtained, the next points for consideration came to be, where these gigantic twin-tubular galleries should be constructed, and, when constructed, by what power, earthly or unearthly—it will appear that the latter was found necessary—they should be raised to the lofty position they were decreed to occupy.

After much reflection on Mr. Clark's valuable suggestions on these subjects, Mr. Stephenson determined—1st. That the four shortest galleries, each 230 feet in length, (to be suspended at the height in some places of 100 feet between the two land towers and the abutments of the approaching embankments,) should, as he had originally proposed, be at once permanently constructed on scaffoldings in the positions in which they were respectively to remain; 2ndly. That the four longest galleries, (each 472 feet in length,) which were eventually to overhang the Straits, should be completely constructed at high-water mark on the Carnarvon shore, upon wooden platforms about 400 feet westward of the towers on which they were eventually to be placed; 3rdly. That to the bases of these towers they should, when finished, be floated on pontoons, from which they were to be deposited on abutments in the masonry purposely made to receive them; and 4thly. That the tubes should be raised to and finally deposited in their exalted stations by the slow but irresistible power of hydraulic presses of extraordinary force and size.

II. CONSTRUCTION OF THE TUBES AND TOWERS.—The locality selected for the formation of the tubes having been cleared, a substantial platform, composed of balks of timber covered with planks, was very quickly laid down.

In the rear of this immense wooden stage, which extended along the shore no less than half a mile, covering about three acres and a half, there were erected three large work-shops, containing forges and machinery of various descriptions, for belaboring, punching, and cutting plate-iron. There were likewise constructed five wharves with cranes for landing materials, as also six steam engines for constant work. The number of men to be employed was—

On iron-work about	700
At stone-work for the towers	800
Total	1,500

Temporary shanties or wooden cottages, white-washed on the outside, like mushrooms suddenly appeared in the green fields and woods immediately adjoining; besides which, accommodation was provided for a schoolroom, schoolmaster, clergyman, and, in case of accidents, a medical man; the whole being agreeably mixed up with a proportion of wives, sweethearts, and children, sufficient for cooking, washing, sewing, squalling, &c. Nevertheless, notwithstanding these alluring domestic arrangements, many sturdy, independent workmen preferred sleeping in villages four and five miles off, to and from which

they walked every morning and evening, in addition to their daily work; the remainder gypsying in the encampment in various ways, of which the following is a sample:—

An Irish laborer, known only by the name of "Jemmy," bought for himself a small clinker-built room. As "lodgings," however, soon rose in price, and as he had not time to keep a pig, he resolved to be satisfied henceforward with half his tiny den, and accordingly let the remainder to a much stronger fellow-countryman, who, being still less particular, instantly let half of his half to a very broad-shouldered relation, until, like other Irish landlords we could name, poor "Jemmy" found it not only very difficult to collect, but dangerous even modestly to ask for, "his rent!" and thus in a short time, in consequence of similar "pressure from without," almost every chamber was made to contain four beds, in each of which slept two laborers.

As soon as the preliminary wharves, platforms, shanties, and workshops were completed, there instantly commenced a busy scene, strangely contrasted with the silence, tranquillity, and peaceful solitude that had previously characterized the spot. While large gangs of masons were excavating the rocky foundations of the land towers, sometimes working in dense groups, and sometimes, in "double quick time," radiating from each other, or rather from a small piece of lighted slow-match, sparkling in the jumper-hole of the rock they had been surrounding; while carts, horses, and laborers in great numbers were as busily employed in aggregating the great embankments by which these towers were to be approached; while ship-loads of iron from Liverpool—of Anglesey marble from Penmon—of red sandstone from Runcorn in Cheshire—at rates dependent upon winds and tides, were from both entrances to the Straits approaching or endeavoring to approach the new wharves; while almost a forest of scaffold balks of the largest and longest description—like Birnam wood coming to Dunsinane—were silently gliding towards the spot; while wagons, carts, post-chaises, gigs, horses, ponies, and pedestrians, some of the latter carrying carpet-bags and some bundles, &c., were to be seen on both sides of the Straits eagerly converging across the country to the new settlement, or diverging from it;—the unremitting clank of hammers—the moaning hum of busy machinery—the sudden explosion of gunpowder—the white vapor from the steam-engines—and the dark smoke slowly meandering upwards from their chimneys, gave altogether interest, animation, and coloring to the picture.

As our readers will, however, probably be anxious to know how the great tubes which have been delineated are practically constructed, we will shortly describe the operation, which, we are happy to say, is contained in a vocabulary of only three words, these aerial galleries being solely composed of—Plates—Rivets—and Angle-Irons.

Plates.—The wrought iron plates which form the top, bottom, and sides of the Britannia "land

tubes," 230 feet in length, are, of course, slighter than those required for the four, each 460 feet, which overhang the stream.

For these long tubes—which are of the same height and breadth as the shorter ones—the dimensions of the plates are as follows:—

For the bottom.

12 feet in length, 2 feet 4 inches to 2 feet 8 inches in breadth, $\frac{7}{16}$ to $\frac{1}{2}$ inch in thickness.

For the top.

6 feet in length, 1 foot 9 inches to 2 feet $1\frac{1}{2}$ inch in breadth, $\frac{5}{8}$ to $\frac{3}{4}$ inch in thickness.

For the sides.

6 feet to 6 feet 6 inches in length, 2 feet in breadth, $\frac{1}{2}$ to $\frac{3}{4}$ inch in thickness.

Although these plates have been severally forged with every possible attention, yet, to render them *perfect* in thickness, they are not allowed by Mr. Stephenson to be used for the tubes until each has been passed by the company's superintendent between two uncompromising massive iron rollers, worked by steam, which, by revolving, quietly remove or rather squeeze down that variety of pimples, boils, lumps, bumps, and humps, which, from unequal contraction in the process of cooling, occasionally disfigure the surface of plate iron, and which in the workman's dictionary bear the generic name of "*buckles*." When the plates, the largest of which weigh about 7 cwt., have been thus accurately flattened, they are one after another, according to their dimensions, carried by two or more men towards one of several immense cast iron levers, which, under the influence of steam, but apparently of their own accord, are to be seen from morning till night, whether surrounded by workmen or not, very slowly and very indolently ascending and descending once in every three seconds.

Beneath the short end of this powerful lever there is affixed to the bottom of a huge mass of solid iron a steel bolt—about the length, thickness, and latent power of Lord John Russell's thumb—which, endowed with the enormous pressure of from 60 to 80 tons, sinks, at every pulsation of the engine, into a hole rather larger than itself, perforated in a small anvil beneath.

As soon as the laborers of the department bearing each plate arrive at this powerful machine, the engineer in charge of it, assisted by the carrying-men, dexterously places the edge of the iron upon the anvil in such a position that the little punch in its descent shall consecutively impinge upon one of the series of chalk dots, which, at four inches from each other and $1\frac{1}{2}$ inch from the edge, have been previously marked around the four sides of the plate; and thus four rows of rivet-holes averaging an inch in diameter are, by the irresistible power we have described, pierced through plate-iron from one half to three fourths of an inch in thickness, quite as easily as a young cook playfully pokes her finger through the dough

she is kneading, or as the child Horner perforated the crust of his Christmas pie, when

He put in his thumb
And pulled out a plum,
And said—What a good boy am I!

Some of the steam arms or levers just described are gifted with what may be termed "double-thumbs," and accordingly these perforate two holes at a time, or forty per minute—the round pieces of iron cut out falling, at each pulsation of the engine, upon the ground, through the matrix or perforation in the anvil.

When the plates, averaging from six to twelve feet in length by above two feet in breadth, have been thus punched all round, and before they are brought to the tube, they are framed together on the ground in compartments of about twenty plates each, (five in length and four in breadth,) in order to be connected to each other by what are termed *covering-plates* and *angle-irons*.

In order to prepare the former (which are half an inch in thickness, one foot in breadth, and about two feet long) they are heated in a small furnace, when, instead of passing between rollers, they are put under a stamping, or, as it is technically termed, a *joggling* block, which by repeated blows renders their surface perfectly flat; after which a series of holes, corresponding in size as well as in distance from each other with those in the "plates," are punched all along the outer edge of each of their four sides. When thus prepared, two of these small covering plates—one on each side—are made to cover and overlap the horizontal line of windage existing between the edges of the plates, which, as we have stated, have been previously arranged so as to touch each other; and bolts being driven through the corresponding holes of the three plates, (the large plates lying between the two covering ones,) they are firmly riveted together by the process we shall now describe.

Rivets.—In the construction of the Britannia tubes there have been required no less than two millions of bolts, averaging $\frac{1}{8}$ ths of an inch in diameter and 4 inches in length. The quantity of rod-iron consumed for this purpose has therefore amounted in length to 126 miles, and in weight to about 900 tons!

The mode in which these legions of rivets have been constructed is briefly as follows:—

At the western end of the company's principal forging establishment there stands a furnace or trough, full of pieces of rod-iron from $3\frac{1}{4}$ to $4\frac{1}{2}$ inches in length, packed together as closely as soldiers in a solid square of infantry. As soon as by the fiery breath of bellows worked by steam, they have been made uniformly red-hot, a little boy, whom they are all obliged to obey, rapidly, and without partiality, favor, or affection, picks them out one after another through the furnace-door with a pair of pincers, from which he quietly drops them perpendicularly into eight moulds, each of which being about $\frac{3}{4}$ of an inch shallower

than the length of the piece of iron it respectively receives, they of course all equally protrude about that distance above the surface.

In this position they are handed over to a pale, sturdy engine-man, or executioner, who, with about as much mercy as Procrustes used to evince towards those who slept on his bed, immediately places them upon an anvil, towards which there very slowly descends a huge superincumbent mass of iron pressed downwards by an immense long cast iron lever worked by steam.

By this despotic power, the red protruding portion of each little rod is by a single crunch inexorably flattened, or "fraternized;" and thus suddenly converted—*nolens volens*—into a bolt, it is no sooner thrown upon the ground, than the mould from which it was ejected is again, by the child in waiting, filled with another raw red-hot recruit, who, by a process exactly the reverse of decapitation, is shortened, not by the *loss* but by the *acquisition* of a head!

However, after all, just as "the Marquis of — is not the Duke of —," so is a bolt not a rivet, nor does it become one, until, like a bar-shot, it is made double-headed, an important process which has now to be described.

As soon as each "set" of the half-inch iron plates which form the sides, top, and bottom of the Britannia tubes, have by a travelling crane been lifted—technically termed "picked up"—into their places, and have been made to touch each other as closely as possible, a movable stage on wheels is drawn close to the outside of the tube, for the purpose of firmly connecting every set of plates to that which on each side adjoins it. This work is performed by what is termed "a set of riveters," composed of two "riveters," one "holder-up," and two rivet-boys.

As soon as the two first have ascended the scaffolding on the outside of the tube, and when the holder-up, sitting on a board suspended by ropes from the roof, has exactly opposite to them taken up his position on the inside, one of the boys quickly abstracts from a travelling furnace, conveniently placed for the purpose, a red-hot bolt, which by a circular swing of his pincers he hurls inside the tube towards the other boy, his comrade or play-fellow, who, as actively as possible, with a similar instrument snapping it up, not only runs with it towards the holder-up, but as long as he can reach the rivet-holes inserts it for him therein. As soon as this is effected, the holder-up presses against it an enormous iron-hammer, which forces it outwards until it is stopped by its own head. The red protruding bolt is now mercilessly assailed by the two riveters, whose sledge-hammers meeting with a sturdy reaction from that of the holder-up, which by a vast leverage or length of handle elastically returns blow for blow, the bolt, in about thirty seconds, becomes double-headed, when one of the riveters, dropping his hammer, snatches up a steel mould about 9 inches long, called a *swage*, which he continues to hold upon the newly-formed

head until his comrade, by repeated blows of his hammer, has *swaged* it into a workmanlike form.

The bolt is thus finally converted into a rivet, which, by contracting as it cools, binds together the plates even more firmly than they had already been almost cemented by the irresistible coereiou of three sledge-hammers; indeed, they are so powerfully drawn together, that it has been estimated it would require a force of from four to six tons to each rivet to cause the plates to slide over each other.

The bolts for the upper holes of the interior, which, being about 30 feet high, are of course completely out of the rivet-boy's reach, are dropped by him into a concentric iron ring, which, by a wire and cord passing over a pulley attached to one of the uppermost plates, is rapidly raised, until the holder-up is enabled by pincers to grasp the fiery iron, which, on being inserted into its hole, he then instantly, as before, presses with his hammer.

By the operations above described, "a set of riveters" usually drive per day about 230 rivets, of which in each plate there are about 18 per yard, in two rows, averaging only 2½ inches of clear space between each bolt-head. On the large tubes alone there have been employed at once as many as 40 sets of riveters, besides 26 "platers," or men to adjust the plates, each having from three to four men to assist him; and when this well-regulstet system is in full operation it forms altogether not only an extraordinary but an astounding scene.

Along the *outside* of the tube, suspended at different heights, are to be seen in various attitudes 80 riveters—some evidently watching for the protruding red bolt, others either horizontally swinging their sledge-hammers, or holding the riveting-swanse.

In the *inside* of this iron gallery, which is in comparative darkness, the round rivet-holes in the sides as well as in the roofs, not only appear like innumerable stars shining in the firmament of heaven, but the light beaming through each forms another as bright a spot either on the ground or on the internal surface of the tube. Amidst these constellations are to be faintly traced, like the figures on a celestial globe, the outlines of the holders-up, sitting at different altitudes on their respective stages. Beneath them 40 or 50 rivet-boys are dimly seen, some horizontally hurling red-hot bolts, others with extended pincers running forwards with them, while fiery bolts, apparently of their own accord, are to be observed vertically ascending to their doom. This cyclopean dance, which is of course most appropriately set to music by the deafening reverberations of 70 or 80 sledge-hammers, is not altogether without danger, for not only does a "holder-up" from a wrong movement occasionally—like a political Phaeton—all of a sudden tumble *down*, but the rivet-boys, generally unintentionally, but occasionally, it is said, from pure mischief, burn each other more or less severely, in which cases a couple of these little

sucking Vulcans, utterly unable, from incessant noise, to quarrel by words, fall to blows, and have even been observed to fight a sort of infernal duel with pincers, each trying to burn his opponent anywhere and everywhere with his red-hot bolt!

But by far the most curious part of the riveting process is to be seen on the flat roof or top of the tube. This immense deck, which we have already stated to be 472 feet in length, is composed of a pavement of plates to be connected together by 18 longitudinal rows of rivets, the heads of which are to be only $2\frac{1}{2}$ inches apart. Beneath this surface, at a depth of only 1 foot 9 inches, there is, to give additional strength, a similar stratum of plates, the space included between both being divided into eight compartments called flues, 21 inches deep by 20 inches broad, exactly resembling those of a common stove. After the horizontal bottoms and upright sides of these eight flues have been firmly connected together by the battering process we have just described, the upper stratum of plates is loosely laid down, and, being thus by the superincumbent weight of the iron covering securely adjusted, their final connection is effected as follows:—

A tiny rivet-boy—we observed one little mite only ten years of age—in clothes professionally worn into holes at the knees and elbows—crawling heels foremost for a considerable distance into one of these flues as easily as a yellow ferret trots into a rabbit-hole, is slowly followed by his huge lord and master, *the holder-up*, who exactly fits the flue, for the plain and excellent reason, that by Mr. Stephenson the flue was purposely predestined to be exactly big enough to fit *him*; and as, buried alive in this receptacle, he can move but very slowly, he requires some time, advancing head foremost, to reach the point at which he is to commence his work. On arriving there, his first process, lying on his left side, is with his right hand to pass through one of the rivet-holes in the plate above him a little strong hook, to which is attached a short hempen loop, or noose, which, supporting the heavy end of his huge hammer, forms a fulcrum upon which he can easily raise it against the roof, simply by throwing his right thigh and leg over the extremity of the long lever or handle of the instrument.

When similar preparations, by the injection of other little rivet-boys and other stout holders-up into several of the other flues, have been made, the signal for commencing operations is given by several red-hot bolts falling, apparently from the clouds, among the riveters, who, leaning on their sledge-hammers, have been indolently awaiting their arrival. These bolts have been heated on the outside of the tube on the ground immediately beneath, in a portable furnace, from which a gang of lithesome rivet-boys in attendance extract them as fast as they are required, and then walking away with them, without looking upwards, or apparently caring the hundred-thousandth part of the shaving of a farthing where they may fall, or

whom they may burn, they very dexterously, by a sudden swing of their pincers, throw them almost perpendicularly about 45 feet, or about 10 feet higher than the top of the tube, upon which, as we have stated, they fall among the assembled riveters as if they had been dropped from the moon.

As soon as these red-hot meteors descend upon the flat roof, another set of rivet-boys eagerly snap them up, and each running with his bolt, not to the spot where it is required, but to one of certain holes in the plate made on purpose for its insertion, he delivers it into the pincers of the little sweep, rivet-boy, or Ascanius within the flue, who, having been patiently waiting there to receive it, crawls along with it towards his Pius Aeneas, the stout recumbent *holder-up*. As soon as he reaches him he inserts for him the small end of the bolt into the hole for which it has been prepared, and through which, in obedience to its fate, it is no sooner seen to protrude, than the sledge-hammers of the expectant riveters, severally jerking at every blow the heavy leg of the poor holder-up, belabor it and “swage” it into a rivet.

The red-hot iron—unlike the riveters—cools during the operation we have just described; and even if a by-stander, from being stone-blind, could not *see* the change in its temperature, it could easily be recognized by the difference in the *sound* of the hammers between striking the bolt while it is soft and hot, and when it has gradually become cool and hard. But whatever may be the variety of colors or of noises which accompany the formation of every one of these roof-rivets, it is impossible to witness the operation we have just described without acknowledging, with a deep sigh, how true is the proverb that “one half of the world,” especially the rich half, “does not know how the other half lives;” indeed, unless we had witnessed the operation, we could scarcely have believed that any set of human beings, or rather of fellow-creatures, could professionally work from morning till night, stuffed horizontally into a flue of such small dimensions—that they could endure the confinement which only allows them, by changing from one side to another, to throw sometimes the right leg and sometimes the left over the elastic handle of a hammer—and above all that they could bear the deafening noises created close to and immediately thundering into their very ears!

In attentively watching the operations just described, we observed that at the *sides* of the tube it required generally eighteen blows of the hammer to flatten the end of the bolt, and then twelve blows on the “swage” to finish the head of the rivet; whereas, on the *roof*, the former operation was usually effected by only twelve blows, and the latter by eight or nine. At first, we conceived that this difference might be caused by a reduction in the sizes of the plates and bolts; but those in the roof proving to be the thickest and longest, we, on a few moments' reflection, ascertained that the reduction of labor in riveting the roof is caused by the sledge-hammers descending upon it by grav-

ity as well as by the main strength of the riveters; whereas, at the sides, they are worked by the latter power only.

The operation cannot of course be carried on when the weather is either windy or wet. The riveters, holders-up, and rivet-boys very properly receive high wages. The first of these classes, however, strange to say, look down upon the holders-up as their inferiors, or rather as their menials; and, again, the holders-up bully the little ragged-elbowed rivet-boys who wait upon them; but so it is, not only over the whole surface of the earth, but in the deep blue sea! In the stomach of the shark we find a dolphin, in whose stomach there is found a flying-fish, which, on dissection, has been found to have preyed on a smaller tribe, and so on. We have, therefore, no unkind reflection to cast upon "riveters," "holders-up," or "rivet-boys," for frowning upon, bullying, or burning each other.

Angle-Irons.—The plates of the tubes, having throughout been scientifically adjusted in the different positions best suited to resist the variety of strains to which, from external or internal causes, they can possibly be subjected, are finally connected together by small ribs, which are firmly riveted to the plates. The quantity of angle-iron thus worked through the top, bottom, and sides of all the tubes amounts to no less than sixty-five miles! The sides are, moreover, connected to the top and bottom of each tube by small triangular plates, called *gussets*, which powerfully prevent the bridge from twisting or writhing under the lateral pressure of the wind.

III. THE FLOATING OF THE TUBE.—*The Gathering.*—On the principle of "Quae regio in terris nostri non plena laboris?" we determined, in the family way, to join that respectable crowd of brother and sister reviewers, ill-naturedly called "gapers and gazers," who from all parts of the United Kingdom of Great Britain and Ireland, from the continent of Europe, and even from the United States of America, were, in various degrees of agitation, inquisitively converging upon North Wales, for the purpose of beholding something which, although unanimously declared to be "quite new," few appeared very clearly to understand.

All agreed that the wonder they wished to witness was *The Britannia Bridge*; but what was its principle or its form, what it was to do, or what was to be done to it, no person appeared able to explain to anybody. Some nasally "guessed" it was to be raised; others—*ore rotundo*—positively declared it was to be only floated. One man truly enough affirmed "it was to go from earth to earth, straight through the air, to avoid the water"—but by which or by how many of these three elements, or by what other powers, the strange transaction was to be effected, deponent, on cross-examination, was utterly unable to detail.

As the railway from Chester—where the principal portion of the travellers had concentrated—has for several miles been constructed along the

sands of the Irish Sea, the passengers during that portion of their journey had ample space and opportunity for calm observation or reflection: as soon, however, as the heavily-laden trains reached Rhyl, there was gradually administered to the admirers of the picturesque a strange dose of intense enjoyment, mixed up with about an equal proportion of acute disappointment.

In flying over the valleys and round the hills and mountains of North Wales, there repeatedly glided before their eyes a succession of scenery of a most beautiful description, which, illuminated by the sunshine of heaven, appeared, as they approached each great impending mountain, to be exquisitely improving; until, all of a sudden—just as if the pestilential breath of an evil spirit had blown out the tallow candle of their happiness—nothing in this world was left to occupy their senses but the cold, chilly air of a damp dungeon rushing across their faces, a strong smell of hot rancid grease and sulphur travelling up their noses, and a loud noise of hard iron wheels, rumbling through a sepulchral pitch-dark tunnel, in their ears.

Hundreds of most excellent people of both sexes, who had been anxiously expecting to see

The rock—whose haughty brow
Frowns o'er old Conway's foaming flood,

were grievously chagrined and most piteously disappointed by being told—as, like a pea going through a boy's pea-shooter, they were unintellectually flying through a long iron tube—that they were at that very moment passing it, Straits, Castle, and all. However, the balance of the account current was, on the whole, greatly in their favor and thus, in due time and in high good humor, all reached Bangor in safety.

It need hardly be said that, early in the morning of the day, or rather of the evening, on which the important operations at the Britannia Bridge were actually carried into effect, every boat that could be engaged, every bus, carriage, wagon, gig, cart, and hack-horse that could be hired in Bangor, Beaumaris, as well as in the neighboring towns and villages, were in requisition to convey, by repeated trips, the curious to the object of their curiosity—and certainly, on reaching it, the picture exhibited was one not very easy to be described.

The first amusing moral that irresistibly forced itself upon us, as our conductor with outstretched whip was endeavoring almost in vain to drive through the crowd, was, that of the many thousands of human beings who, at considerable trouble and expense, had assembled, more than nine tenths were evidently wholly and solely absorbed in subjects which, though highly interesting, were alien to the purpose for which they had congregated!

Numbers of persons with heated faces, standing around small tables, allocated in various directions, were intently occupied in quaffing off a beautiful unanalyzed pink effervescent mixture, called by its proprietor "ginger beer."

The doleful countenance of Punch's English

half-starved dog, as, dead-tired of the gallows scene, he sat exalted on his tiny platform, was strangely contrasted with the innumerable sets of strong grinning Welsh teeth and bright eyes, that in joyous amphitheatre were concentrated upon him. In several spots the attention of stooping groups of "ladies and gentlemen" horizontally looking over each other's backs, was solely engrossed in watching what no one passing could possibly perceive—some trick of rude legerdemain upon the ground. On a small eminence the eyes of hundreds, as they stood jammed together, were elevated towards a jaded, white-cheeked harlequin, and a very plump, painted-faced young lady in spangled trousers and low evening frock, who, on the elevated stage on which they stood, jumped, kicked with both legs, and then whirled violently on one, until the rustic clown, thoroughly satisfied with the sample, and unable to resist the alluring cymbals and brass trumpet that accompanied it, slowly ascended the ladder, surrendered his penny, and then, with his back turned towards the crowd, descended into a canvass chamber to wait, or rather on a rough wooden bench to sit, like Patience on a monument smiling at Hope.

Long rectangular booths, open at three sides, appeared filled with people, in great-coats and in petticoats, seated around a table, all seriously occupied in silent mastication. In the moving crowd some were evidently searching for the party they had lost, while others, suddenly stopping, greeted friends they had not expected to meet.

Among the motley costumes displayed, by far the most striking was that of the Welsh women, many of whom were dressed in beautiful gowns protected by frock-coats—their neatly-plaited white caps, surmounted by large black hats, such as are worn elsewhere by men, giving to their faces, especially to the old, around whose eyes the crows'-feet of caution were to be seen deeply indented, an amusing appearance of doubtful gender, which—it occurred to us at the time—the pencil of HB, with its usual wit, might, in illustration of the Epicene policy of the day, very faithfully transcribe. But whatever were the costumes, the ages, condition, or rank of the immense crowd of both sexes through which our old-fashioned vehicle slowly passed, everything that occurred seemed to elicit merriment, happiness, and joy. It was, in fact, a general holiday for all; and as boys out of school make it a rule never to think of their master, so apparently with one consent had the vast assemblage around us good-humoredly agreed together to cast aside the book they had intended to read—to forget the lesson they had purposely come to study.

By the kind attention of one of the company's servants we were conducted in a small boat half way across the rapid currents of the Menai Straits to the Little Rock, then completely beneath the water—upon which, under the able direction of Mr. Frank Forster, engineer of the line from Bangor to Holyhead, there had been erected (on a base embedded in pure Roman cement of 62 feet

by 52 feet) the Britannia Tower, which, still surrounded by its scaffolding, majestically arose out of the stream to a height of 230 feet.

This enormous structure, which weighs upwards of 20,000 tons, and which, from being roughly quarried or hewn, displays on the outside the picturesque appearance of natural rock, is a conglomeration of 148,625 cubic feet of Anglesey marble for the exterior—144,625 cubic feet of sandstone for the interior—and 387 tons of cast iron beams and girders worked in, to give strength, solidity, and security to the mass. The only way of ascending was by a series of ladders, communicating, one above another, with the successive layers of horizontal balks, of which this immense pile of well-arranged scaffolding was composed—and accordingly, hand over hand and step by step, we leisurely arose until we reached a small platform 15 feet above the pinnacle of the tower.

The view was magnificent. On the east and west were to be seen glittering in large masses the Irish Sea and St. George's Channel, connected together by the narrow Straits, whose silvery course, meandering in the chasm beneath, was alike ornamented and impeded by several very small rocks and islands, round and about which the imprisoned stream evidently struggled with great violence. Upon two or three of these little islands was to be seen, like a white speck, the humble cottage of the fisherman, who alone inhabited it. About a mile towards the Irish Sea there gracefully hung across the stream, in a festoon, which, in the annals of science, will ever encircle the name of Telford, his celebrated Suspension Bridge, over which a couple of horses, appearing like mice, were trotting.

On the north lay extended a verdant country, surmounted in the direction of the new railroad by the great Anglesey column, erected by the surrounding inhabitants to the noble commander of the cavalry at Waterloo. About two hundred yards beneath this splendid testimonial, and adjoining to a little isolated church, there modestly peeped up a very small free-stone obelisk, erected by the workmen of the tower on which we stood as an humble but affecting tribute of regard to some half-dozen of their comrades, who—poor fellows!—had been killed in the construction of the Britannia Bridge.

On the south the horizon appeared bounded, or rather fortified, by that range of mountains, about forty miles in length, which bear the name of Snowdon, and among which, the loftiest, stands the well-known Patriarch of the group. Between the base of these hills and the Straits was the little wooden city built for the artificers and workmen, its blue slates and whitewashed walls strongly contrasting with each other. In this vicinity we observed, in large masses and patches, the moving multitude through which we had just driven, and who, unsatiated with enjoyment, were still swarming round one object after another, like bees occasionally dispersing only to meet again.

Lastly, close to the shore, on their wooden plat-

form, from which the crowd, by order of Captain Moorsom, R. N., was very properly strictly excluded, there stood, slightly separated from each other, the sole objects of our journey—namely, the two sets of hollow tubes, four in number, which, under the sole superintendence of Mr. Edwin Clark, had been constructed as the aerial passages for the up and down trains across the Straits. Being each 472 feet in length, and being also of the height of an ordinary two-storied dwelling, they all together appeared like a street or row of chimneyless houses half a mile long, built on the water's edge; indeed, if windows and doors had been painted upon them, the resemblance would have been perfect. Of the four lengthy compartments the two on the eastern extremity, and that on the western end, had been painted red; the remaining one, which in a few hours was not only to be launched but floated down the stream to the very foot of the tower on which we stood, had been finished in stone-color.

We would willingly conclude our slight panoramic picture by describing the appearance of the moving water gliding past the foot of the tower far beneath; but on going to the edge of the masonry to look down at it, we must confess that we found it to be utterly impracticable to gaze even for a moment at the dizzy scene.

In descending from the eminence we had been enjoying, we paused at 50 feet from the top to inspect the steam-engine and boiler therein inserted for working two hydraulic presses, which principally reposed upon a wall 10 feet 6 inches thick, the other three walls being 7 feet 6 inches in thickness. At 107 feet from the top, and at 103 feet from the water, we again stopped for a few moments to enter the immense passage in the Britannia Tower, through which—strange to think—trains full of up and down passengers at railway speed are to pass and repass each other. The ends of the tubes from the Anglesey and Carnarvon Towers, now reposing far away on the beach, meeting at this point on immense cast iron plates interposed on the masonry to secure an equal pressure, are not only to be firmly connected together, but are to be substantially riveted to the fabric. To the opposite ends of these tubes, the extremities of those passing from the embankment to the two land towers just named are also in like manner to be firmly connected; by which means each aerial gallery will eventually be composed of a single hollow iron beam 1513 feet in length, far surpassing in size any piece of wrought iron-work ever before put together—its weight, 5000 tons, being nearly equal to that of two 120-gun ships, having on board, ready for sea, guns, powder, shot, provisions, crew, flags, captains, chaplains, admiral, and all!

Lastly, to bring the component parts of this not only extended but attenuated mass of iron into vigorous action, or, in other words, to enable it to exert its utmost possible strength, Mr. Stephenson has directed that after the component parts of each of the two parallel tubes have, by the

process already described, been firmly riveted into one continuous hollow beam, the extremities thereof shall be lowered about 15 inches, by taking away the false keels or foundations, on which in their construction they had purposely been raised. By this simple operation it is estimated that the tube will receive a strength of 30 per cent. in addition to that which it possessed in separate lengths, and without the precise amount of tension so scientifically devised. When thus finally completed, its total length will amount to no less than 1841 feet.

To enable this enormous mass of thin plate-iron—(the middle of which, as we have stated, is to be firmly riveted to that passage through the Britannia Tower to which we have descended)—comfortably to expand itself and contract according to the temperature of the weather—a yawning enjoyment which requires the space of about 12 inches—a number of cast iron rollers, as well as of balls of gun metal, all six inches in diameter, have been placed on immense cast iron frames deposited on the land towers and abutments—so that the tubes, like the tide beneath them, may freely flow forwards or ebb backwards at their free will and pleasure, or rather according to the immutable laws of the Omnipotent Power by which they have been created.

On crawling upon our hands and knees through a gap or hole in the masonry of the Britannia Tower, which had been kept open for the purpose of passing through it a stout hawser for hauling to its destination the floating tube, we suddenly perceived at its base lying prostrate immediately beneath us—on a large platform, latticed like the grating of a ship, and under which the deep stream was rushing with fearful violence, boiling, bubbling around, as well as dimpling along the piles that obstructed it—what at the first glance very much resembled the main-sail of a man-of-war stretched out to dry, but which we soon discovered to be a conglomeration of the earth-stained fustian jackets, fustian trowsers, dusty stockings, hob-nailed shoes, red sun-burnt faces and brown horny fingers of a confused mass of over-tired laborers, all dead asleep under the stiff extended bars of the capstan which they had constructed, and at which they had been working.

Although they were lying, what in country parlance is termed “top and tail,” jammed together so closely that in no place could we have managed to step between them, not a single eye was open, or scarcely a mouth shut. The expression of their honest countenances, as well as of their collapsed frames, plainly told not only how completely they had been exhausted, but how sweet was the rest they were enjoying. In the right hands of several of them, old stumpy pipes of different lengths, also exhausted, were apparently just dropping from their fingers, and while the hot sun was roasting their faces and bare throats, a number of very ordinary blue-bottle flies, in search of some game or other, were either run-

ning down their noses and along their lips to the corner of their mouths, or busily hunting across the stubble of their beards.

Although for some time "we paced along the giddy footing of the hatches" on which they were snoring, gazing sometimes at them, sometimes at the wild scenery around them, and sometimes at the active element that was rushing beneath, no one of the mass awakened or even moved, and thus, poor fellows! they knew not, and never will know, the pleasure we enjoyed in reviewing them!

On rowing from Britannia rock we had, of course, a full view of the remainder of the masonry, containing all together no less than 1,500,000 cubic feet of stone, of which this stupendous work is composed. As, however, it would be tedious to enter into its details, we will merely, while our boat is approaching the shore, state that the towers and abutments are externally composed of the gray roughly-hewn Anglesey marble we have described; that the land-towers, the bases of which are the same as that of the Britannia, are each 198 feet above high-water, and that they contain 210 tons of cast iron girders and beams.

The four colossal statues of lions—we must not compare them to sentinels, for they are couchant—which in pairs terminate the land ends of the abutments that on each side of the Straits laterally support its approaching embankment—are composed of the same marble as the towers. These noble animals, which are of the antique, knocker-nosed, pimple-faced Egyptian, instead of the real Numidian form, although sitting, are each 12 feet high, 25 feet long, and weigh 30 tons. Their appearance is grand, grave and imposing—the position they occupy being 180 feet in advance of the entrance into the two tubes, which so closely resemble that over the drawbridge into a fortress, that one looks up almost involuntarily for the portcullis.

The net-work of scaffolding, nearly 100 feet high, upon which the short tubes communicating from the Anglesey abutments to the land-tower had been permanently constructed, not only appeared highly picturesque, but was very cleverly composed of large solid balks of timber from 12 to 16 inches square, and from 40 to 60 feet in length.

The floating of the tube.—On landing we, of course, proceeded to the long range of tubes, or streets, we have described.

The arrangements which Mr. Stephenson had devised for floating the first of them to its destination, were briefly as follows:—

As soon as this portion of the gallery was finally completed, the props upon which it had rested at a height above the wooden platform sufficient to enable artificers to work beneath it, were removed, so as to allow it to be supported only at its two extremities. The result of this trial satisfactorily demonstrated the accuracy of the calculations upon which the tube had been purposely constructed circular at bottom to the height or

camber of nine inches, in order that when it assumed its proper bearing it should become perfectly straight—*which it did.*

During its formation a portion of the wooden platform under each of its ends was cut away and the rock beneath excavated, until on either side there was formed a dock just large enough to admit four pontoons, each 98 feet long, 25 feet wide, and 11 feet deep. When these docks were completed the eight pontoons—scuttled at the bottom by valves which could either let in or keep out the water at pleasure—were deposited at their posts; and though their combined power of floatage amounted to 3200 tons, the weight of the tube with its apparatus being only 1800 tons, yet, in consequence of the valves being kept open so as to allow the tide to flow in and out, they lay on their bottoms like foundered vessels; and thus it was curious to see crouching, as it were, in ambush beneath the tube a dormant power, only waiting for the word of command, *up and at 'em*, to execute the duty they were competent to perform.

Besides these arrangements, Mr. Stephenson, in pursuance of a plan which had been deliberately committed to paper, had ordered the construction, on the Anglesey and on the Carnarvon shores, as also on stages constructed on piles at the Britannia Rock, of a series of capstans, communicating with the pontoons by a set of ropes and hawsers more than two miles in length. Of these the principal were two four-inch hawsers, or leading strings, between which, like a captive wild elephant between two tame ones, the tube was to be safely guarded, guided, and conducted from its cradle to its position at the feet of the Anglesey and Britannia towers.

These preparations having been all completed, and every man having been appointed to his post, the valves in the eight pontoons were closed, in consequence of which they simultaneously rose with the tide, until their gunwales, like the shoulders of Atlas, gradually received their load.

At this moment the few who had been admitted to the spot watched with intense anxiety the extremities of the tubes, which, from the severe pressure they had been inflicting, had, in a slight degree, forced their way into the wooden balks that supported them. By degrees this pressure was observed perceptibly to relax, until a slight crack, and then a crevice, was seen to exist between the old points of contact. In a few seconds this crevice was converted into daylight, amidst a general whisper of exultation announcing, "It's AFLOAT!" The tube, however, was still firmly retained in its dock by two conflicting powers—namely, one set of hawsers, maternally holding it to the quiet home on which it had been constructed—and another set from the shore diametrically opposite, hauling it outwards to its destiny.

At this moment we ascended by a long ladder to the top of the tube, and had scarcely reached it, when Mr. Stephenson very quietly gave the important word of command—*Cut the land attachments!* Some carpenters, all ready with their

axes, at a few strokes nearly severed the strands, and, the tension from the opposite hawsers bursting the remainder, the long street, upon whose flat roof we stood, slowly, silently, and majestically moved into the water.

As the two extremities of the floating tube had been in alignment with those of the tubes on each side, which of course remained stationary, and whose roofs were loaded with well-dressed spectators, its advance was as clearly defined as that of a single regiment when, leaving its division to stand at ease, it marches by word of command from the centre out in front of its comrades.

Upon the deck or roof of the tube, which we may observe had no guard or railing, there was nailed Mr. Stephenson's plan, exhibiting the eight positions or minuet attitudes which the floating monster was to assume at different periods of its voyage; and, as it had 100 feet to proceed before its first change, we had leisure to gaze upon the strange, interesting scene that surrounded us.

From the lofty summit of the Britannia Tower, surmounted by the Union Jack, to those of the Anglesey and Carnarvon Towers on either side of it, were suspended, in two immense festoons, flags of all colors and of all nations. Every vessel at anchor, every steamer under weigh, as well as several houses on shore, were similarly ornamented. At different points on each coast, and especially upon every eminence, were congregated large variegated masses of human beings. The great green woods of Carnarvon seemed literally swarming alive with them; and, to add to the audience, a large steamer—arriving almost too late—as it scuttled to a safe position, exhibited a dense mass of black hats and showy bonnets, enlivened by a brass band, which was not unappropriately playing "Rule Britannia," the breeze wafting along with it the manly, joyous song of the sailors who, at the capstans on the opposite shore, were cheerily hauling in the hawsers, upon which, for the moment, the thread of our destinies depended.

On arriving at Position No. 2, it became necessary to exchange the mechanical power by which the tube had been forced forwards, for that of the tide, which was to carry it end foremost down the stream to its goal. As, however, this latter power—to say nothing of a strong breeze of wind which drove the same way—would have propelled the lengthy mass more than twice as fast as it had been declared prudent it should proceed, a very strong power, by means of a small capstan, was exerted in each set of pontoons to compress between wooden concentric clamps the guide-hawsers, by which contrivance the pace was regulated with the greatest possible precision. This most important duty was confided to, and executed by, two volunteer assistants, Mr. Brunel and Mr. Locke, (we rank them alphabetically;) and, although the whole scene of the flotation was one of the most interesting it has ever been our checkered fortune to witness, there was no part of it on which we gazed, and have since reflected with such unmixed pleasure, as the zeal and almost over-anxiety with which Mr. Ste-

phenson's two competitors in fame stood during the whole operation, intently watching him, until by either mutely raising his arms horizontally upwards, or in like manner slowly depressing them, he should communicate to them his desire that the speed might be increased or diminished.

But besides regulating the speed, it was repeatedly necessary, especially at the points we have enumerated, slightly to alter the position of the tube by means of capstans, often working together with combined powers on different points of the shores. Orders to this effect were silently communicated by exhibiting from the top of the tube large wooden letters, and by the waving of flags of different colors, in consequence of which the men of the distant capstans belonging to the letters telegraphically shown, were, at the same moment, seen violently to run round, as if they had suddenly been electrified. Indeed, at one point the poor fellows were all at once thrown upon their backs, in consequence of the rupture of the capstan-stop.

The duties of Captain Claxton—whose scientific and nautical acquirements had previously been evinced by floating the Great Britain at Dundrum—were highly important. Besides the experienced opinions he had contributed, he had sole command of the whole of the marine force, and accordingly from the top of the tube he continually communicated through his trumpet his orders to various small boats which, as floating aide-de-camps, attended upon him.

As he was getting ashore in the morning, we happened to see one of his crew, by suddenly pulling in the bow-oar, strike him so severely on the forehead that the blood instantly burst forth, as if to see who "so unkindly knocked." In half a dozen seconds, however, his pocket handkerchief was tied over it, and he was giving his orders, if possible, more eagerly than before.

"Jack!" said a sailor from another boat, as with a quid in his cheek he slowly walked up to the coxswain, "what's the matter with the capp'n's head?"

"A hoar struck him," replied the sailor to his brother "blue-jacket," who at once appeared to be perfectly satisfied, as if he professionally knew that it was in the nature of an oar to do so.

When the tube was about the middle of its transit, a slight embarrassment occurred, which for a few minutes excited, we afterwards were informed, considerable alarm among the spectators on shore. In one of the most important of our changes of position, a strong hawser, connecting the tube with one of the capstans on the Carnarvon beach, came against the prow of a small fishing-boat anchored in the middle of the stream by a chain, which so resolutely resisted the immense pressure inflicted upon it, that the hawser was bent into an angle of 100 degrees. The coxswain of a gig manned by four hands, seeing this, gallantly rowed up to the boat at anchor, jumped on board, and then, with more zeal than science, standing on the wrong side of the hawser, imme-

diately put a handspike under it to heave it up. "That man will be killed," said Mr. Stephenson very quietly. Captain Claxton vociferously assailed him through his trumpet, but the crew were Welsh—could not understand English—and accordingly the man, as if he had been applauded, exerting himself in all attitudes, made every possible exertion not only to kill himself but his comrades astern, who most certainly would also have been nearly severed by the hawser had it been liberated; but a tiny bump or ornament of iron on the boat's head providentially made it impossible, and the hawser having been veered out from ashore, the tube instantly righted.

The seventh movement brought the foremost end of the tube about 12 feet past the Anglesey Tower, and the rear end being now close to its destination, the hook of an immense crab or pulley-block, passing through a hole purposely left in the masonry of the Britannia Tower, was no sooner affixed to it than the workmen at the capstan on piles, whom we described as asleep, instantly ran round, until the tube was by main strength dragged—like the head of a bullock in the shambles—to a ring from which it could not possibly retreat. By a combination of capstan-power on the north shore, the foremost or opposite end was now drawn backwards until it came to the edge of the Anglesey Tower; and although we were aware that the measurements had of course been accurately predetermined, yet it was really a beautiful triumph of science to behold the immense tube pass into its place by a windage or clear space amounting, as nearly as we could judge it, to *rather less than three quarters of an inch*.

The tube having now evidently at both ends attained its position over the stone ledge in the excavation that had been purposely constructed for it, a deafening—and, to us, a deeply-affecting—cheer suddenly and simultaneously burst out into a continuous roar of applause from the multitudes congregated in all directions, whose attention had been so riveted to the series of operations they had been witnessing, that not a sound had previously escaped from them; nor had they, in any place, been seen to move from the spots at which they either stood or sat.

Mr. Stephenson took no notice whatever of this salute; indeed, we much question if he even heard it, for his attention was intently occupied in giving to his able and confidential assistant, Mr. Wild, directions respecting the final adjustment of the temporary fastenings by which the tube was to be retained; but the crowd of spectators—like that at a theatre when the curtain of the after-piece drops—were already seen hurrying away in all directions, by steam, by boats, by carriages, and on foot, until, in the brief course of an hour, both coasts were clear. The tide, however, during the operations we have described, had become high, had turned, and was now beginning to be violent; the valves therefore having been partially drawn up, the pontoons, as they gradually filled, sank, until the widely-separated

ends of the tube slowly descended to their respective shelf or ledge on each tower; and the discarded power, that had successfully transported the vast gallery across the water, then floating away with the stream—gently transferred from one element to another—it was thus left in the aërial form position it had been planned to occupy.

During the operations we have detailed there were, of course, made by the spectators of both sexes a variety of observations of more or less wisdom, of which our limits will only allow us historically to record a single sample.

"*Dear me!*" said an old gentleman, as the tube when it first swung across the Straits was in perspective seen approaching the platform on which he sat, and which was immediately in front of the awful chasm between Britannia and Anglesey Towers, "*they have surely been and made it too short; they must put a bit on!*" As soon, however, as, veering round, it approached him broadside foremost, he whispered, "*I'm quite sure it's too long; they'll have to cut a piece off!*"

A lady said to her companion, "Mr. Stephenson appeared dreadfully excited during the passage! Did n't you observe how he kept continually stretching out his arms, raising them up, and then sinking them down in this way?" (suiting her words to the actions by which the speed of the voyage had calmly been regulated.) "*But no wonder he was so agitated!*"

The company's servants were engaged until long after sunset in securing and placing in safety the various materials, &c., that had been in requisition during the day, and it was not till past midnight that, over-tired, they managed one after another to retire to rest.

On the following morning, after we had bidden adieu to the hospitable inmates of a small wooden habitation, beneath the Anglesey Tower, in which we had been very kindly received, we had occasion to pass near to a stand which had purposely been constructed in a peculiarly advantageous position, to enable the directors of the Chester and Holyhead Railway to witness the operation. Upon the centre bench of this platform—the ground far around which was partially covered with bits of orange-peel, greasy papers that had contained sandwiches, and other scraps, indicative of an intellectual feast that was over—we observed, reclining entirely by himself, a person in the easy garb of a gentleman, who appeared to be in the exquisite enjoyment of a cigar, whose white smoke in long exhalations was periodically exuding from his lips, as with unaverted eyes he sat indolently gazing at the aërial gallery before him. It was the father looking at his new-born child! He had strolled down from Llanfair-pwllgwyngyll, where, undisturbed by consonants, he had soundly slept, to behold in sunshine and in solitude that which during a weary period of gestation had been either mysteriously moving in his brain, or like a vision—sometimes of good omen and sometimes of bad—had by night as well as by day occasionally been flitting across his mind.

Without, however, presuming to divine, from the rising fumes of a cigar, the various subjects of *his* ruminations, we will merely confess that, on looking up from our boat, as it glided away, at the aerial gallery he was contemplating, *we* were astonished to find ourselves very much in the frail predicament of mind of the old gentleman of yesterday whose emotions we so accurately delineated—for when the tube was lying on the Carnarvon shore we certainly fancied that it looked too heavy and too high for its object, whereas it now appeared almost too light and too low: in short, it had assumed the simple appearance which, in principle, it had been designed to bear—that of a rectangular hollow beam; and although it had in fact annulled the awful chasm between the Anglesey and Britannia Towers, nevertheless, by exactly measuring it, it now appeared considerably to have increased it!

Moreover, in viewing this low narrow passage—only 15 feet by 30—which, without cuneiform support, was stretching half across the Menai Straits—it has been quaintly observed by Mr. Latimer Clark, in the clever pamphlet named at the head of this article, that if this single joint of the tube could be placed on its tiny end in St. Paul's Churchyard, it would reach 107 feet higher than the cross—it seemed surprising to us that by any arrangement of materials it could possibly be made strong enough to support even itself, much less heavily-laden trains of passengers and goods, flying through it, and actually passing each other in the air, at railway speed. And the more we called reason and reflection to our assistance, the more incomprehensible did the mystery practically appear; for the plate-iron of which this aerial gallery is composed is literally *not so thick* as the lid, sides, and bottom which, by heartless contract, are *required* for an elm coffin 6½ feet long, 2½ feet wide, and 2 feet deep, of strength merely sufficient to carry the corpse of an emaciated, friendless pauper from the workhouse to his grave!

The covering of this iron passage, 1841 feet in length, is literally not thicker than the hide of the elephant! Lastly, it is scarcely thicker than the bark of the “good old English” oak; and if this noble sovereign, notwithstanding the “heart” and interior substance of which it boasts, is, even in the well-protected park in which it has been born and bred, often prostrated by the storm, how difficult is it to conceive that an attenuated aerial hollow beam, no thicker than its mere rind, should by human science be constituted strong enough to withstand, besides the weights rushing through it, the natural gales and artificial squalls of wind to which throughout its immense length, and at its fearful height, it is permanently to be exposed!

IV. RAISING THE TUBES.—*Hydraulic Press.*—Although the tube, resting at each end upon the ledge or shelf that had been prepared for it, had been deposited high enough to allow an ordinary boat to row under it, yet the heaviest job still remained—that of raising it about 100 feet to its

final resting-place. This operation, which might be compared to lifting the Burlington Arcade to the top of St. James’ Church—supposing always that the said church arose out of very deep, rapid water—was, as we have already stated, to be performed by the slow but irresistible agency of hydraulic power; and as one of the presses used is said not only to be the largest in the world, but the most powerful machine that has ever been constructed, we will venture to offer to those of our readers who may never have reflected upon the subject, a brief, homely explanation of the simple hydrostatic principle upon which that most astonishing engine, the hydraulic press invented by Bramah, is constructed.

If the whole of the fresh water behind the lock-gates of a canal communicating directly with, say the German Ocean, were to be suddenly withdrawn, it is evident that the sea-side of the gates would receive water-pressure, and the other side none.

Now, if a second set of gates were to be inserted in the salt-water at a short distance, say one foot, in front of the old ones—(the water between both sets of gates remaining at the same sea-level as before)—many, and perhaps most people, would believe that the pressure of the German Ocean against the new gates would of course relieve, if not entirely remove, the pressure against the old ones—just as a barrier before the entrance of a theatre most certainly relieves those between it and the door from the pressure of the mob without.

This opinion, however, is fallacious; for, supposing that the new gates were by machinery to be firmly closed, the foot of salt-water included between them and the old gates would not only continue to press exactly as heavily against the latter as the whole German Ocean had previously done, but by simultaneously inflicting the same amount of pressure against the inside of the new gates as the ocean was inflicting on their outside, the pressure of this imprisoned single foot of water would so accurately counterpoise that of the whole wide, free ocean, that if the machinery which had closed the new gates were suddenly to be removed, they (the new gates) would be found, as it were, vertically to float between the two equal pressures!

But anomalous as this theory may appear, it is beautifully demonstrated by the well-known fact, that if water be poured into a glass siphon, of which one leg is, say an inch in diameter, and the other, say a foot, the smaller quantity will exactly counterbalance the greater, and the water will consequently, in both legs, rise precisely to the same level; and this would be the case if one leg of the siphon were as large as the German Ocean, and the other as small as the distance between the two sets of lock gates we have just described—indeed, it is evident that, if a hole were to be bored through the bottom of the new gates, a siphon would instantly be formed, of which the ocean would be one leg and the foot of included salt water the other.

Now Bramah, on reflection, clearly perceived that from this simple principle in nature a most important mechanical power might be obtained; for if, say five ounces of water in a small tube can be made to counterbalance, say a hundred thousand ounces of water in a large one, it is evident that by the mere substitution in the bottom of the larger tube of a flat solid substance instead of the water, a pressure upon the body so inserted of very nearly a hundred thousand ounces would be inflicted by the application of only five ounces!—and—as this pressure would of course be proportionately increased by increasing the height, or in other words the *weight* of water in the smaller tube—Bramah therefore further reasoned that, if, instead of adding to the quantity of water in the smaller tube, the fluid therein were to be ejected downwards by a force-pump, the pressure upwards in the larger tube would proportionately be most enormously increased; and *à fortiori*, as, in lieu of the old-fashioned forcing-pump, the power of steam has lately been exerted, our readers will, we believe, at once perceive that, if the instrument which holds the water could but be made strong enough, the pressure which might be inflicted within it by a few gallons of water might almost be illimitable.

The principle of the hydraulic press having been above faintly explained, the power and dimensions of the extraordinary engine of this nature, which has been constructed by Messrs. Easton and Amos, of Southwark, for raising the Britannia tubes, may be thus briefly described.

The cylinder, or large tube, of the siphon, which is 9 feet 4 inches in length, 4 feet 10 inches in diameter, and which is made of cast iron 11 inches thick, weighs 16 tons. The piston, termed the *Ram*, which, pressed upwards by the water, works within it, is 20 inches in diameter. The whole machine complete weighs upwards of 40 tons. The force-pump barrel communicates with a slender tube or passage about the size of a lady's smallest finger, which, like the touch-hole of a cannon, is drilled through the metallic side of the cylinder; and thus, although the siphonic principle really exists, nothing appears to the eye but a sturdy cast iron cylinder of about the length of a 24 lb. cannon, having the thickness of metal of a 13-inch mortar.

From the above trifling data it will be evident that, leaving friction and the weight of the ram out of the question, the lifting power of this machine must exceed the force applied to the force-pump in the same proportion that 1½-inch diameter bears to a diameter of 20 inches—which in figures amounts to about 354 to 1; and as the two 40-horse steam-engines which are to be applied to the touch-hole for compressing the water in the smaller tube would, it has been calculated by Mr. Latimer Clark, be sufficient to force the fluid more than five times as high as the top of Snowdon, or 5000 feet higher than the summit of Mont Blanc, our readers have only to increase the force in this proportion to become sensible of the extraordinary power which the hydraulic press of the Britannia Bridge

is capable of exerting for the purpose of raising its tubes. In short, the power is to the weight of the tubes as follows:—

	Tons.
Weight of one of the largest tubes	1800.
Lifting-power of the hydraulic press	2622.

The mode in which this enormous power is practically exercised is as follows:—

The hydraulic cylinder, standing erect, like a cannon on its breach, on two stout wrought iron beams bolted to each other, is, together with its steam-boiler, securely fixed in the upper region of the Britannia Tower, 148 feet above the level of its base, and about 45 feet above that to which the bridge is to be raised.

Around the neck of the iron ram or piston, which protrudes 8 inches above the top of this cylinder, there is affixed a strong horizontal iron beam 6 feet 9 inches in length, resembling the wooden yoke used by milkmaids for carrying their pails, from the extremities of which there hang two enormous iron chains, composed of eight or nine flat links or plates, each 7 inches broad, 1 inch thick, and 6 feet in length, firmly bolted together. These chains (which, in order to lift the tube to its destination, are required to be each 145 feet long) weigh no less than 100 tons—which is more than double the weight of the equestrian statue of the Duke of Wellington, lately erected in Hyde Park—commonly regarded as one of the heaviest lifts ever effected; and certainly, when from the giddy region of the Britannia Tower, in which this hydraulic machinery, like the nest of an eagle, has been deposited, the stranger, after looking down upon the enormous weight of iron not only to be supported, but to be raised, compares the whole mass with the diameter of the little touch-hole immediately before him, through which the lifting power has to pass—and when he reflects that the whole process can, with the greatest ease, be regulated and controlled by a single man, it is impossible to help feeling deeply grateful to the Divine Power for an invention which, at first sight, has more the appearance of magic than of art.

As soon as all adjustments were prepared, and the boiler was sufficiently heated, the great piston, under the influence of severe pressure upon the water beneath it, began slowly, like a schoolboy's "jack-in-the-box," to emerge from the cylinder, and, apparently regardless of the enormous weight that oppressed his shoulders, he continued steadily to rise, until in about thirty minutes he lifted the tube 6 feet, and, as he could raise it no higher, the huge chains beneath were immediately secured by a powerful vice or "clams" at the foot of the press. By letting off the water, which of course relieved the pressure beneath the piston, it descended, by its own gravity, to the point from which it had started, where the chains being again affixed to its yoke—an operation which requires about half an hour—it again, by the vitality of steam, lifted its weight another six feet; and, as the other end of the tube was simultaneously treated in a similar way, the whole was progressively raised nearly

36 feet, when, by the bursting of the largest of the hydraulic presses—a contingency which, from the faithless crystalline character of *cast* iron, it is utterly impossible for science to prevent—the ponderous mass suddenly fell through a space of seven inches—an awful phenomenon to witness—until it was stopped by the brickwork and timber which had cautiously been underbuilt during its ascent—and from which it has still to be raised to a point a few feet above its final position, where, a strong iron beam being placed beneath, it will, we trust, triumphantly be lowered to its final resting-place, to be the aerial highway of the public.

[Here follows a discussion as to Mr. Fairbairn's claims to large share of the credit. The reviewer decides against them; and we omit that part of the article.—*Living Age.*]

MORAL.—The sums expended by the Chester and Holyhead Railway Company to the 30th June last have been as follows:—

Cost of Tubular Bridge for crossing the Conway	£	s.	d.
110,000 0 0			
Cost of Tubular Bridge for crossing the Menai Straits	500,000	0	0
Remainder of the line, &c.	2,971,587	0	0
Total expenditure	3,581,587	0	0

Contribution to be paid towards the construction of the Holyhead Harbor of Refuge	200,000	0	0
Present market-value of original stock	72 per ct. discount.		
Ditto of preferential stock at 5 <i>½</i> per cent. interest issued by the Company to obtain funds to complete the works	20 per ct. discount.		

The above figures strikingly illustrate the consequences of the system, or rather want of system, which the imperial Parliament has hitherto pursued in railway legislation.

If the communication between England and Ireland *via* Holyhead, had—on the principle which at the time we earnestly recommended—been considered as one great arterial line, the proportionate expense of contributing to a harbor of refuge, as well as the enormous cost of raising the two bridges necessary for crossing the Conway and Menai Straits to a height sufficient for the distinctly different purposes of railway traffic and the sailing of large vessels, might, with some appearance of justice, have been thrown upon the aforesaid large company;—although, in the day of M'Adam roads, Telford's bridges over the very same places, and the construction of harbors, were considered as *national* works, and were accordingly executed at the cost of the public. Very improvidently, however, the moderately remunerating portions of the line were *first* established by Parliament;—and thus the little company which, with feeble means, was to continue from Chester the circulation of the royal mails—of goods of all descriptions—of first, second, and third class passengers—and of her majesty's troops and artillery between London and Dublin,

was saddled not only with its own natural burden but with the preternatural works we have described; indeed, in order to obtain its Act of Parliament, it was so completely at the mercy of the government, that it was obliged to submit to certain excruciating terms which—with the nonpayment to the company of its 30,000*l.* a year for the mail-service, which the members of the late administration well know was ensured to it—and with a competition between the government and the company's steamers most lamentably inflicting a serious loss upon both parties—have, it appears, reduced the value of its shares in the market by more than 70 per cent., and, of course, completely drained its capital of all dividend. “*And,*” it has been said, “*so much the better for the public!*” Be it so! we have no desire to relieve the proprietors of the Chester and Holyhead Railway from the terms (whatever they may be) of their contract. On the other hand, there can be no doubt that, if Parliament holds every railway company hard and fast to its bargain when it has made a bad one, it ought not, at all events, by *ex post facto* legislation, to let loose the public from every imprudent engagement which they, on their parts, have contracted to perform. We will exemplify our meaning by a particular case.

At the fag-end of last session Lord Monteagle introduced into the House of Lords a bill, which, though hastily approved by a vote of that house, was very properly, as we think, discountenanced by Lord John Russell, and finally thrown out in the House of Commons, to deprive railway proprietors of the power they now enjoy of solely auditing their own accounts.

It was not attempted to be shown that an auditor appointed by the public could increase the number of trains—improve station accommodation—or give additional security or even comfort to any description of persons travelling by rail. It was not attempted to be shown that the proposed measure would confer a single additional privilege upon railway *share-owners*. On the contrary, it was frankly admitted that “*to THEM the books of the company are by law at all times open;*” but as a highly popular doctrine, it was honestly and unscrupulously explained that the real object of the proposed audit-bill was to enable *the public*, by legislative “*clairvoyance*,” accurately to ascertain the present and prospective state of every railway company, in order that the proprietors thereof might be prevented from any longer selling their shares to the aforesaid “*public*” at prices above their intrinsic value.

If Parliament were to force every horse-dealer to divulge the vices and infirmities of the sorry animal he is at this moment “*chanting*,” there can be no doubt that the public, by a general illumination, would have vast reason to rejoice. If Parliament were to oblige the proprietors of all quack medicines to prepublish the exact cost of the ingredients which compose them, there can be no doubt that John Bull might henceforward repeatedly swallow a peck of pills for less money

than he is now paying for "a single ounce box." In fact, for aught that we in our sequestered hermitage know, it may be very possible, that if every merchant's ledger were to-morrow morning, by legislative enactment, to be declared public property, the prices of sugar, tea, iron, hides, coals, and a hundred other articles in the market, would, in the course of a few hours be lowered. It has, however, hitherto been considered that the British merchant's counting-house is as much "his castle" as his residence; that his accounts are as sacred as his person; and that, morally speaking, nothing but a suspension of the *Habeas Corpus* Act can authorize the seizure of either the one or the other.

When Mr. Stephenson's magnificent project of a cast iron bridge of two arches, 100 feet high at the crown—which, instead of costing 600,000/- (being at the rate of 1000/- per yard,) could have been executed for 250,000/-—was rejected by the Admiralty, that powerful board very justifiably declined to advise by what other means the stipulations they required should, or even *could*, be effected. The doubts, the difficulties, the risks, and the uncertainties were all, with an official shrug, very prudently thrown upon the little company; and if the *expenses* of the Chester and Holyhead Railway could thus be legitimately forced into darkness, is it just, after the proprietors have not only performed their bargain, but have nearly been ruined by doing so, that their *accounts* should, by an *ex post facto* law, be dragged into daylight, not merely to gratify idle disinterested curiosity, but for the open avowed object of shielding the public—or rather public stockbrokers—from the very risk and pecuniary uncertainty which they (the proprietors) were forced to encounter?

But, as in all transactions, "honesty is the best policy," so we submit that the proposed interference with the rights of railway proprietors to be the sole auditors of their own accounts, is not only unjust, but impolitic. Thousands of owners of railway stock have, by a fatal experience, lately learned that it is possible for a joint-stock company, as it is possible for any of the individuals composing it, to encourage profuse expenditure, to act dishonestly, and, for a short time, to veil impending ruin by mystified accounts. The antidote, however, to this poisonous admixture of indolence and fraud is already working its cure. The punishment of the principal transgressor has already become "greater than he can bear;" and a salutary suspicion has not only spontaneously aroused the proprietors of two hundred millions of railway property, who had hitherto very culpably neglected their own affairs, but has materially depreciated all railway stock; and there can be no doubt that this wholesome castigatory depression of their property below its intrinsic value will, to the evident benefit of the share-purchasing public, continue to exist, until railway proprietors have sense enough to perceive that it is their *interest* to remove the suspicion which created it, by the prompt establishment of that open exam-

ination, and that honest as well as disinterested audit of their accounts—(in the last half-yearly printed statement of the London and North-western Railway Company's affairs we observe that there was expended in six months in "audit and account 2188/- 5s. 6d.")—which will satisfy men of business; and which was, no doubt, Lord Montague's object, when—with rather more zeal than consideration—he proposed that it should forcibly be effected by Act of Parliament.

The desideratum, however, we feel confident, can be obtained by milder means; and although between buyers and sellers of all descriptions contention must always exist to a certain degree, we trust that the proprietors of the rails which have gridironed the country, and those who travel on them, instead of unnecessarily snarling over the invention, will feel that it is alike their interest and their duty to join together hand in hand, magnanimously to develop to its utmost possible extent the greatest blessing, or at least one of the very greatest, which has ever been imparted to mankind.

It is generally asserted by railway proprietors, who are of course self-interested in the question, that the existing practice of rating their respective companies according to their earnings—their industry—or, as it is technically termed, their "profits in trade," is unjust, because the same system, or fiscal screw, is not equally applied to land-owners, manufacturers, or shopkeepers. It is argued that, so long as our old-fashioned highways, besides levying tolls, are allowed to tax for their maintenance every parish through which they pass, it is unreasonable that the same parishes should at the very same moment, by a process diametrically opposite, be allowed to transfer a large proportion of their domestic rates for the support of their poor, &c., upon railways, which, it is affirmed, have, generally speaking, not only grievously overpaid for the land they occupy, but have materially increased the value and prosperity of every city, town, village, hamlet, and field, through which or near which they pass.

Upon this serious and important question, involving some general readjustment of assessments of every description, we shall abstain from offering any opinion, because we are convinced that, sooner or later, it will be duly considered by Parliament. In the mean while, however, it is with deep regret we observe that the innumerable direct as well as indirect impositions and taxes which—rightly or wrongly, legally or illegally—have been imposed upon our railways, are already producing the lamentable consequences we ventured to predict. From want of funds, even our greatest railway-companies are openly abandoning branch-lines which they had almost completed; they are reducing the number of their trains; economizing at their stations; in fact, in various ways, in proportion not only to the expenses imposed upon them, but moreover to the reductions made in their original parliamentary tolls, they are—perceptibly as well as imperceptibly—curtailing the convenience and accommodation which, from a sound regard for

their mutual interests, they would most willingly have maintained for the public.

We feel confident that in this unfortunate, short-sighted, narrow-minded conflict the British nation is discreditably warring against itself; and having not inattentively watched the practical working of the system, it has been our humble endeavor—by a few pen-and-ink-sketches, which we now conclude—to attract the attention of the public to the magnitude of the works of our arterial railways, in order that from the good sense and good feelings of the community these new highways may receive that fostering protection and genial support without which the fruits of Science cannot be matured.

CURIOSITIES OF SCIENCE.

ECONOMY OF ELECTRIC LIGHT.—The notion of electricity as a source of illumination was suggested by Davy nearly half a century ago; and the application is, in all respects, practical, save in the matter of expense. Mr. Brände tells us that a mode of procuring cheap electricity must precede the economical use of such illumination; and that, were this obtained, water might be decomposed, and its hydrogen naphthalized, burnt, so as to produce a vivid, bright, and steady flame in its other element, oxygen.

ELECTRICITY OF GRAVE-YARDS.—Sir James Murray recommends the advocates of intramural interments to employ accurate electricians, with delicate instruments, to measure the terrible galvanic derangements of fermenting church-yards as the best proof of the fatality of the practice. Sir James refers to an effervescent golgotha, long kept in active fermentation in Belfast, near the quays, and on a level with low-water mark. During many years, Sir James had proofs demonstrating that persons residing in tenements opening into this Belfast grave-yard could not be efficiently electrified, because the best machines could seldom produce sparks of any intensity. He often noticed that a magnet capable of sustaining fifty pounds with ease in other situations, could not for a moment suspend an iron of ten pounds in the habitations built close to this devastating place of interment. From these and many other observations, Sir James proved that negative electricity pervaded this vast swamp, and drew away the positive electricity from the living creatures in immediate contact with the damp earth and air of that fatal and extended trough, or galvanic pile.

VAST HYDRAULIC PRESS.—The largest of the Bramah's hydraulic presses, (the hoisting apparatus in the construction of the Britannia railway bridge,) is a noble instrument. It has a cylinder eleven inches thick, with a piston or ram twenty inches in diameter, and the lift a span of six feet. The weight of the cylinder is sixteen tons—of the whole machine forty tons. This one alone has power enough to lift the whole, a weight, it is estimated, equivalent to that of 30,000 men. It would spout the water pressed into its cylinder to a height of nearly 20,000 feet, according to Mr. Clark, the engineer, or more than five times the height of Snowdon, or 5,000 feet higher than Mont Blanc. And yet, any one man can "put a hook into the nose of this Leviathan," and, alone with him, with the utmost facility and precision, guide and control his stupendous action.

NEW REMEDY FOR DEAFNESS.—Glycerine has been highly successful in its results on diseases of the ear, from its possessing the peculiar property of attracting from the atmospheric air moisture, and consequently, never drying or hardening.

COLOR OF TREE-FROGS.—In the newly erected Reptile House in the Zoological Society's gardens in the Regent's Park, is a glazed case of the Tree-Frogs of Europe. Although of a bright green when exposed to light, these creatures become almost black in the dark; and for some time after their new location, the specimens in the gardens presented every possible shade between a dark brown and bright green, owing to their having been recently kept in a dark place.

MOLECULAR ACTION.—M. Niepce has discovered that, when a print is held over the vapor of iodine, the iodine is attracted almost exclusively by the ink. By applying an engraving thus saturated with iodine particles to a film of starch spread on a glass surface, he thus obtained, in iodide of starch, a perfect transcript of the original design.—*Communicated by Prof. Dumas to Mr. Faraday.*

DANGER FROM STORMS.—We are often told that there is no danger if a *certain interval of time* can be counted between the flash of the lightning and the report of the thunder; but it is equally true, that *if we can count at all*, we are safe.

MANUFACTURE OF GLASS.—It is a curious fact in the history of discovery, that the manufacture of glass was, a few years since, unknown at Sidon, where it is reputed to have been first invented.—*Pellatt's Curiosities of Glass-making.*

TO DETECT IMPOSITION IN GOLD-DUST.—Place a little gold-dust in a glass tube or earthen-ware saucer, and pour nitric acid upon it; then hold the glass or saucer over a flame, or upon a few embers, until red flames (nitric vapors) arise: if it be pure gold, the liquid will not become discolored; but if pyrites, or brass filings, should have been mixed with it, the acid will become turbid, green, and black, discharging bubbles of gas. After the ebullition has ceased, the residue should be washed with water, and acid again poured upon it, when the same effect may be observed, but in a less degree; and if the experiment be repeated till all the effervescence ceases, it will finally leave the gold-dust pure.—*Professor Ansted, M.A. F.R.S.*

CHARACTERISTICS OF GOLD.—Gold can be distinguished by its relative weight or specific gravity, and by its relative hardness, from other bodies which resemble it. It is described generally as soft, completely malleable and flexible, but more accurately as softer than iron, copper, or silver, but harder than tin and lead. It is useful to know facts of this kind, as a simple experiment, that can be made with instruments at hand, is often more valuable than a much more accurate examination requiring materials not immediately available. Thus, if it is found that a specimen (perhaps a small scale or spangle) is readily scratched by silver, copper, or iron, and scratches tin and lead, it may, if of the right color and sinking rapidly in water, be fairly assumed to be gold.—*Professor Ansted.*

THE LARGEST LUMP OF GOLD.—We believe the largest lump of gold ever found, to be that obtained in 1843, in the mines south of Miask, and now at St. Petersburg, the weight of which is no less than seventy-eight pounds avoirdupois—its value, therefore, about 3,000*l.*—*Professor Ansted.*

From the Maryland Colonization Journal.

ABOLITION OF THE SLAVE TRADE OF GALLINAS.

THE advices from Africa, published in our last number, contain the gratifying and important intelligence, that the long blockade of Gallinas by the British cruisers has induced the slavers at that place to break up their barricoons, deliver up their slaves to the commodore, and to take passage for themselves and effects on board her majesty's vessels for Sierra Leone. This is the initiative step to the entire abolition of that traffic on the windward coast; the next, and not less important, is the purchase of the territory by the government of Liberia. That the slaves are given up, the barricoons destroyed, the slavers themselves removed, and every vestige of this accursed traffic obliterated, avails nothing, unless proper and sure measures are taken to prevent a reestablishment of the business the moment the coast guard is abandoned; and we doubt not, from the tenor of the advices above referred to, that ere this, either by purchase or conquest, Gallinas and its dependencies are a part and parcel of the commonwealth of Liberia—this measure, only, will ensure it against a reenactment of the scenes of distress and horror which have heretofore rendered that place so infamous.

To enable those, not familiar with the slave marts on the west coast of Africa, to estimate the importance of the annexation of Gallinas to Liberia, it is necessary to give a brief sketch of their location and extent, and of the late history of Gallinas. Previous to the founding of the colonies of Liberia, the slave trade was ripe throughout the whole of what is termed the Grain Coast; in fact, from the Gambia to Cape Palmas, an extent of over 1,500 miles of coast line, excepting only Sierra Leone and its immediate dependencies. The very heart of this extensive slave mart was Gallinas, to which only Cape Messurado was second in importance. That the small band of colonists, which boldly located themselves on this beautiful headland in 1821, should have been able to maintain their position amidst the powerful combined influence and action of slavers' gold and savage natives, will ever remain a marvel in the history of that colony. But they did maintain, not only their existence, but their integrity and fair fame, and although it required many years in its accomplishment, and all of blood and treasure which they had to give, the Liberians succeeded effectually in eradicating this traffic from the limits of their territory. After the firm establishment of the colony, the slave trade on the windward coast, or to the north and west of Cape Palmas, was mainly confined to some Portuguese settlements at Bissaos, the Rio Grande, the Nuez and Pongos, Gallinas and its vicinity, Grand and Little Bassa, New Cesters and Trade Town. The Bissaos and the river factories to the windward of Sierra Leone were never very prosperous, the slavers finding it extremely difficult to escape from them without being intercepted by the British cruisers. The small factories at the Bassas

were much interrupted by the colonies, and finally extirpated by the purchase of Grand Bassa in 1832; while those at New Cesters and Trade Town were more or less connected with and dependent upon those at Gallinas.

The Gallinas river enters the Atlantic in latitude about $7^{\circ} 15'$, between Grand Cape Mount and Cape St. Ann, near one hundred miles north-west of Cape Messurado or Monrovia. The name of the river is given to the cluster of slave factories near its mouth. This place possesses no peculiar advantages for any species of commerce, and derives its importance, exclusively, from the establishment of the slave factories there. The land in the vicinity is very low and marshy, the river winds sluggishly through an alluvion of mangrove marsh, forming innumerable small islands. The bar at its mouth is one of the most dangerous on the coast, being impassable at times in the rainy season. It is located in what is termed the Vey Country, the people of which are distinguished for their cleanliness, intelligence, and enterprise in trade. How long Gallinas has maintained its importance as a slave mart, we are unable to say, but at the time of our first visit to Liberia, in 1831, its reputation was very extended and its influence most deeply felt in the colony. It was estimated that near 10,000 slaves were, about that period, annually shipped from this place alone. The business was done, mainly, through the agency of several merchants or factors established there, the principal of which was Pedro Blanco, a Spaniard. This man's influence was unbounded among the native tribes on that section of the coast, and we fear, at one time, extended to members of the colony of considerable respectability. He was a man of education, having the bearing and address of a Spanish Grandee or Don, which was his usual appellation. He lived in a semi-barbarous manner, at once as a private gentleman and an African prince. He had at one time a sister residing with him. He maintained several establishments, one on an island near the river's mouth, which was his place of business or of trade with foreign vessels that came to Gallinas to dispose of merchandise; on another island, more remote, was his dwelling-house, where he kept his private office, his books, dined, took his siesta, slept, &c.; here, we believe, his sister also resided. On a third was his seraglio of native wives, each in their several dwellings, after the manner of native chiefs. Independent of all these were his barricoons of slaves, of greater or less extent, as circumstances required. It may readily be supposed that with the wealth accruing from a long and successful prosecution of the slave trade, his power among the natives was equal to that of any despot; and the following incident, related to us by one of his partners, proves that he occasionally exercised it. Having occasion one day to travel on the sea beach some distance from Gallinas, near the island of Sherbro, where he was unknown, he approached the hut of a native, with the view of taking rest and refreshment. He asked the owner of the

house, who was squatted in the door, to hand him fire to light his cigar. The man bluntly refused, upon which, Blanco drew back, took a carbine from one of his attendants, and shot him dead upon the spot. The narrator of the story apologized for Blanco by saying, that to deny a Spaniard fire for lighting his cigar or pipe is the grossest insult that can be offered him.

We have ever understood that Blanco was one of the kindest masters to his slaves, taking every care of their health and comfort, never suffering any improper intimacy between his numerous agents and the females, and permitting no flogging or harsh treatment.

We first visited Gallinas in 1837, at a time when the trade at this place was on the decline and Blanco was about leaving the coast. The first peculiarity we noticed, in entering the river, was the arrangement of watch-boxes, or look-outs, consisting of seats protected from the sun and rain, erected some fifty or one hundred feet from the ground, either on poles fixed in the earth, or on some insulated, high tree; from one of which the horizon was constantly swept by a good telescope, to give prompt notice of the approach of any vessel, and long experience rendered these men very expert in determining the character of any visitor, whether neutral, friend or foe.

About a mile from the river's mouth we found ourselves among a cluster of islands, on each of which was located the factory of some particular slave merchant. The buildings generally consisted of a business-room, with warehouse attached, filled with merchandise and provisions, and a barricoon for the slaves; the whole built by setting rough stakes or small trees into the ground, these being wattled together with withes and covered with thatch; that containing the slaves being much the strongest and generally surrounded by, or connected with, a yard, in which the slaves were permitted to exercise daily. We think there were some ten or twelve of these establishments at that time, each containing from 100 to 500 slaves. We believe one contained near 1,000, which, it was expected, would be shipped daily. Each barricoon was in charge of from two to four white men, Spanish or Portuguese, and a more pitiable looking set of men we never met with. They had all suffered more or less from the fever, were very weak, much emaciated or swollen by dropsy or diseased spleens, and none of them particularly clean. The slaves were as well taken care of as could be expected, when provisions were plenty in the country; but, in case of scarcity, they suffered severely. Many instances have occurred wherein whole barricoons of slaves have been let loose for want of food; and it may well be supposed their owners would allow them to suffer severely before giving them up. For this reason, and because they can be stowed more closely in a vessel, children are generally preferred to adults. We recollect going into one yard where there were some 300 boys, all apparently between ten and fifteen years of age, linked to-

gether in squads of twenty or thirty. We never saw a more painfully interesting sight than the long rows of these bright-eyed little fellows doomed to the horrors of a middle latitude passage, probably in a three and a half feet between decks. Another peculiar feature of the place was the collection of long canoes and boats, all kept ready for the dispatch of slaves the moment an opportunity should occur. Probably 1,000 slaves could be shipped in four hours, all things favorable. In case the coast is clear of armed vessels, and a slaver appears in the offing, her signal is at once recognized. She is signalized, in return, to come in, and if she is watered and provisioned for the voyage, and deck laid, which is usually the case, she does not even come to anchor, but stands close in to the bar, where she is met by the whole fleet of canoes and boats, the contents of which are speedily put on board; she then stands off or up the coast again, the canoes return to the barricoon for more slaves, again to meet outside the bar as before. Sometimes, however, they are not so fortunate, even when not molested by a man-of-war. The bar at the river mouth is not unfrequently dangerous, even in the dry season, and in the anxiety to ship the slaves they run great hazards, and many a boat-load of poor wretches becomes food for sharks, who always follow such boats and canoes in great numbers. We have heard from Kroomen, who perform the boat-work at Gallinas, many harrowing tales of shipping slaves from that place, too painful to report, or even to recall to memory. In fact, all connected with this trade is painful and distressing to humanity, and this Gallinas, of all other places on the coast of Africa with which we have been acquainted, has been the scene of its greatest horrors. What imagination can conceive the thousandth part of the misery that has been endured by human beings on this little cluster of bushy islands? Of the five or ten thousand, who are annually brought to this place, each and every one has to mourn a home made desolate, a family dismembered, the blood of kindred flowing. Of this number, how many sink in these wretched barricoons from distress of mind at their wretched condition, from disease and famine; how many are sacrificed in their hurried shipment by the ravenous sharks; how many sink under the most protracted agonies in that confinement between decks, the air of which is putridity itself; and, of the miserable survivors, the attenuated, excoriated wretches, who are still destined for the shambles, how few but would exclaim, "Thrice and four times happy are those who sink under the knife of the midnight assassin, or were consumed in the conflagration of their palm-covered cottages!"

But Gallinas is destroyed; as a slave-mart it has ceased to exist; from its marshy islets the fiat shall no more go forth to spread fire and sword throughout a peaceful land; the marauding chief has bound his last victim; the haggard, Lazarone slaver has riveted his last fetter; the

shark at the bar mouth has fed on his last slave-gang ; and this land, heretofore, detested and detestable, is henceforth to form a part of the free and independent republic of Liberia. In the fall of Gallinas and the annexation of its territory to the Liberian republic, we see the absolute extinction of the slave trade from Sierra Leone to the Cape Palmas. That the Liberian government is competent to prevent its reestablishment now, in the day of her strength and independence, fostered by powerful nations, we have a sufficient guaranty, by what she has done at Messurado, Bassa and Trade Town in time of her infancy and weakness.

From the Spectator.

1849 AND 1850.

CLOSING in peace, as it opened in war, the year 1849 has witnessed events second in importance only to those of 1848 ; though it has not brought us to that European settlement which the tumult of last year seemed to necessitate.

At home, quiet has been unbroken, save by the growing cry of "agricultural distress," and some winter indications of maddening wretchedness among the rural laborers : politically, the quiet amounts to dulness. In many respects the period bears the marks of a transition state—the suspense, the conflicting hopes, the doubts. Free trade has had its swing ; the promised "prosperity" has not yet fully come, but it is still said to be coming ; and several signs of it are tangible enough. In the factory districts all is bustle and activity ; mills are constantly at work, stocks are low, wages are up, and speculation is looking forward to a harvest of affluence next year. If California has not sent heavy cargoes to swell the immense store of bullion in the Bank of England, it may have helped to spare American demands upon that establishment ; the insecurity of the European Continent has contributed to turn the golden stream to London ; the depression and hesitation of the two years now closing have checked investment, and aided to heap up the hoard ; there it lies, more gold than the moneyed wisdom of the city knows what to do withal ; and speculation fastens its greedy eyes upon the mass, seeking what it may devour. We might forget that there was such a thing as distress, were it not that the agricultural meetings, like that at Blandford, still repeat the complaint of farmers and landowners ; and that recent inquiries have laid bare the existence of a chronic poverty which seems to lie beyond the reach of "prosperity." In that respect the deadly epidemic of the year has worked a permanent good, by forcing attention to the state not only of our sanitary regulations but of our poor : hence the two social movements that especially distinguish the year now closing—the broad inquiry into the condition of the poor, and the general effort at sanitary reform. The victims of pestilence have not perished in vain : an equal number might have died from similar causes, without attracting attention, had the mortality been spread over a

longer period, or had it been even in its pressure ; but pressed into a single season, it struck the imagination and stimulated exertion. The two kinds of political agitation that are going on as we take our farewell of 1849 accord with the actual state of the people. Agricultural distress combines with the natural tendency to reaction in bringing about the movement for renewed "protection." In vain Earl Fitzwilliam argues at Huntingdon that renewed protection is impossible ; the farmers who find it difficult to pay rents out of current prices *wish* to believe Earl Stanhope, and to think that prices may be made higher. They prefer that even to Mr. Disraeli's ingenious invention of an agricultural agitation for the juncture to obtain a diminution of the local burdens : Mr. Disraeli's notion is too much of a refinement for the agricultural mind ; and so it remains a sort of literary project, to which the agricultural ear listens with a polite disguise of its inattention. Sir Robert Peel has just come forth with a letter to his tenants, backing up his policy by proposals for equitable adjustment of relations between landlord and tenant, on the basis of a lower level of prices—though not *so* low a level as the present, which is brought about not only by the removal of restrictions, but by the undue stimulus of high prices in the years of scarcity. To landlords he furnishes a sensible example in the fulfilment of duties towards well-conducted tenants ; to tenants he conveys an intelligible hint on the manner in which farming at a profit may be reconciled with the altered commercial polity of the nation. The other of the two political agitations corresponds with the rising wages and quiescent politics of the working class, and with the ascendancy of the middle class—it is the movement for creating a new county freehold constituency, to be purchased out of the savings of the working class, and to be used for the objects of the middle class, especially that "financial reform" to *some* success in which Mr. Cobden's reputation has been so openly pledged. That Cobden is an indefatigable man, witness his agitating speeches at Leeds and Bradford last week. The two agitations have a marked and characteristic distinction. The Cobden movement essentially belongs to the trading towns, is based upon material realities, accords with the tendency of the times, is calculated to *force* official attention to its subject, and is by its nature likely to have some result which may pass for success. The other agitation is a shadow of the past, belongs to a declining or evanished influence, and can have no result. And so the year closes, not without anticipation of some dire portents ; for a prophet not yet extinct has foretold extraordinary tides in the Straits between Great Britain and the Continent ; and the rationalizers of the day have presumed some sanction for astrology in practical science, insomuch, it is said, that officials have fortified the lowlying public offices against the expected floods. But Sir William Hamilton, the Astronomer-Royal at Dublin, has declared that

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there is no scientific reason to expect a rising of the waters ; and so the portent of the day must be due to non-natural causes, unless it prove non-existent.

Europe is more tranquil—on the surface—than it was at the commencement of the year. In France, Prince Louis Napoleon has maintained his seat as president, and has thus far successfully coquetted with events and parties. If he is a puppet in the hands of others, he makes a profit out of that function. Some things indicate that he is in that state : the only view at all original which he has exhibited has been his inclination towards an associative organization of labor ; but he seems free to indulge that disposition only in trifling efforts. He is reported to have promised the other day the abolition of passports ; but passports are *not* abolished. His indiscreet tongue receives some private castigation and correction. However, he has made both ends meet, and France is not more unsettled in December, 1849, than she was in December, 1848, perhaps less so. Germany is not more settled—her federal condition still a theory, Prussia and Austria still at loggerheads, Schleswig-Holstein still provisionally governed. King Frederick William *seems* just now to be stealing a march upon Austria in the most cunning manner, by developing truly “constitutional” government in his own territories ; a policy which, if carried out, must in the end compel Austria to follow his lead. Italy has been reconquered, and is still unsettled : but here also Victor Emmanuel is pursuing a similar course ; he opens his Parliament under an escort of armed national guards, and delivers a royal speech in which English commonplaces assume an aspect of startling innovation, considering the geographical point : Victor Emmanuel therefore seems to be raising up in Italy that power which is so peculiarly fitted to the age, and is so much stronger than despotism—constitutional monarchy. Hungary is reconquered, but sulky, and evidently unsubdued in spirit. Russia helped to conquer her, but has done nothing further to consolidate Austrian power ; which remains where it was, unaugmented amid growing powers. The conflict of Despotism and Constitutionism has been extended to Turkey, not as an internal but as an external question : Russia is pressing unjustifiable demands for the betrayal or expulsion of refugees, and England is said to have committed a breach of treaty in her zeal on the other side, by invading the neutral waters of the Dardanelles. Through all these conflicts Russia keeps up a prudent reserve—by some ascribed to wisdom, by more to timidity, and by others with greater reason to an astute cunning bent on ulterior projects of aggrandizement.

The British colonies are in that disaffected condition which the year has rendered so familiar : Sir Charles Grey still *shilly-shallies* in Jamaica ; Lord Elgin still skulks in contumacious Canada ; from the Cape, this last week of the year brings us news how Sir Henry Smith still holds out against the domestic blockade of the official larder.

Lord Grey is the blister of colonies—he makes them all rise, and detach themselves from the body of the empire ; which is at the same time put into a state of hot water by the operation.

England and the United States of America are at issue about the island of Tigre ; and if the dispute is to go forward according to rule, those great countries must come to war. What is the island of Tigre to them ?—Properly nothing. Who then brought about the quarrel ?—Mr. Squier and Mr. Chatfield. Who are they, that they should have it in their power to embroil two mighty nations ?—Mr. Chatfield is a very respectable person, consular representative of England to the government of Nicaragua. Mr. Squier is an American citizen, of more than American literary tastes, a descendant of that Squier to whom Cromwell wrote the letters of which Mr. Carlyle published interesting fragments in a popular magazine : he has done his state good service, by very fruitful antiquarian aid to exploring expeditions ; and he has been repaid by his grateful country with a sort of honorable exile to Nicaragua. Here, instead of devoting himself to the composition of “Tristia,” he magnanimously displays his diplomatic zeal ; and we all know into what desperate courses literary men may be hurried when they are called to action. They take history to be the reflex of events, and, è converso, imagine that events must exhibit the concentrated force of history—that they must *do* a chapter in the time that it would take to write one. So Mr. Squier has been doing a Yankee-Cromwellian chapter on the shores of Central America.

The precise points and facts of the dispute are not yet explained beyond doubt ; but it appears to be all along of the Panamà canal. Indeed, there is no reason why that unsubstantiated project should not serve for starting-point as well as any other. Manifestly, Mr. Squier is bitten with the Jeffersonian idea of blocking out European monarchism by a republican process of squatting. The patronage of the future canal is not yet filled up : the European idea, shared by Mr. Abbott Lawrence, American minister at London, is to secure the neutrality of the canal by a great international act of comity : Mr. Squier wishes to establish a powerful local influence for his republic, and obtains the island of Tigre ; the republic of Nicaragua playing into his hands, as the quid pro quo for his support against England’s client the King of Mosquito. Mr. Chatfield raises claims for compensation to certain “British subjects,” and seizes the ceded island by force of British arms. The two diplomatists fall to disputing who had hold of the island first, and call upon their respective governments to back them.

Will those august bodies do so ? Personal and political grounds may conspire to procure support in Washington for the excellent antiquarian ; Lord Palmerston has earned the reputation of standing manfully by his subordinates. This foolish squabble is one result of that secret diplomacy

which leaves everything to individual discretion ; so that neither nation hears a word of dispute until there is an explosion ; and while natural justice supports discretion exercised for the best, national dignity forbids concession. Yet it would be the wickedest folly to let the emulous indiscretions of Mr. Squier and Mr. Chatfield grow into a Punic war.

From the *Spectator*.

THE NEW YEAR—ITS HOROSCOPE.

BORN of Revolution and Reaction, the New Year cannot but have a strange and eventful history. Some portion of its destiny is written in the past : how large a portion, unwritten, is awaited with anxious expectancy by the princes and peoples of Europe, lying on their arms ! how much larger a portion unawaited will come without forethought or warning ! Child of warring parents, its own nature will war with itself, and find uncertain end : but every child has a third parent—himself, newly created ; and it is left for his own independent will to conquer a residuary fate, which makes up the sum of his existence, a new bequest, for after generations. We find the world as we are born to it, we leave it as we help to make it : the year we are to begin is the descendant of a long and ancient line through countless ages ; but that which it will be to us we have partly helped to make it by what we did, or did not, in the two fruitful years just gone by—have helped to make it for our progeny. Work was done in those years to be finished ; work undone to be supplied.

Eighteen Hundred and Forty-eight was the year of the new revolt—the revolt of the Spirit against the Letter. The early spring of 1848 witnessed the downfall of the King of the Age, in whom the Letter had been embodied and crowned. Social materialism had attained its culminating point in western Europe. Commercialism had been consummated in England by free trade ; in France, characteristically, by being endowed with the sword of power in the National Guard and crowned in Louis Philippe : trade ruled England through its "responsible minister of the crown," under the policy bequeathed by the statesman of trade, Sir Robert Peel ; trade ruled France through its civic militia and its umbrella-bearing king. The social philosophy, based on self-interest, had bought out the old aristocracy : in England, the railway king sat beside the peer ; Chartist had proved a bad speculation, and was sneered out : money and place had bought up the statesmanship of France. England and France were allied to keep the peace for the good of trade. Respectability had "made things comfortable," and had quite forgotten wild primordial human nature or vagabond want. The arrangements of that day were perfect, or bid fair to become so. The classes of respectability had just what they wanted—freedom for their estate, trade ; political power—for all who could pay for it, without too

much call for political activity ; peace, and therefore leisure to look after the shop and the factory—for all who could pay for it ; in the letter, laws were equal for every degree—who could pay for it ; food accessible to all—who could pay for it ; clothing more abundant than purchasers—who could pay for it. The political system ignored the people that could not pay ; but in itself it was "totus teres atque rotundus," with scarcely anything more to be desired. Unfortunately, the arch-king of commercialism thought that the paying power was omnipotent : he tried to outbid his own principals, the bourgeoisie, by doing business in corruption and dotations on his own account ; and he made the common mistake of successful speculators, in forgetting the mode of his own success. He went too far : against the recalcitrance of the bourgeoisie he enforced the letter of the law ; his instrument broke in his hands ; under high pressure the boiler-royal burst, the whole train went off the line, the third class ran into the first class, and France was chaos—a broken railway, a shut-up shop, a street unpaved, a parish without its police, prisoners and paupers loose. The natural laws of mechanics came into play, making havoc in the attraction of cohesion everywhere ; the Letter broken, the wild Spirit of human passion and fancy jumped upon the counter, ran through a series of apocalyptic visions, at once present and prophetic, startling to Europe. Other nations which had not advanced so far as France in literalization, though its frost had seized some of them ere they had outgrown the despotic stage, caught the wild shout from Paris, and everywhere the Spirit was let loose—vague, dim-sighted after its long prison ; strange in the streets of its own towns ; uncertain of purpose, ill served, but exulting in the reawakened consciousness of its own existence.

Eighteen Hundred and Forty-nine was the year of reaction—the slaves of the Letter taking heart from the uncouth vagaries of the Spirit, and combining to recapture it. They tried to cajole it, as the fisherman cajoled the genie back into the jar sealed with the kingly signet of Solomon. They set its servants against each other, and so conquered them. They raised up false spirits, simulating the true, and so usurped its authority. They have again got the Spirit under, with some changes : in place of Louis Philippe Louis Napoleon bestrides France—the imperial in lieu of the regal cognomen ; in place of the Emperor Ferdinand, the Emperor Francis Joseph ; with some minor substitutions : but Frederick William has kept his throne ; and, for the third time, England has helped the base Bourbons of the South to cheat Naples and Sicily. The English government, subsisting by favor of the English franchise-purchasing classes, has aided the royal classes and constituted authorities of Europe in putting down the Spirit and reinstating the Letter. That is the work of 1849.

Eighteen Hundred and Fifty will see some further change. The last year of the half cen-

tury, it is one of this special series of three, and will probably bring another stage to its close with the first fifty years. Though bound again, the Spirit is not crushed or dead. On the contrary, its influence remains, and has caught a hold even on some of the unbound classes. Interests have been fused which before were separate, and no doubt a considerable advance has been made towards suggesting to the subject peoples of Europe a reciprocal knowledge of common interests ; and although the authorities in power have not yet resolved to make common cause with the common people, an idea that such would be the safer and cleverer as well as the juster policy, has seized divers influential minds in most countries. Royalty has proved to be not infallible, nor invulnerable, nor unconvertible. Frederick William's oscillations extend promisingly towards a more "constitutional" as well as wider grasp of power. The King of Holland has kept perfect peace by a wise adoption of the spirit of the day, however qualified. The young King of Sardinia promises to develop constitutional monarchy in Italy—a policy irresistible. Although the voice of a mediating statesmanship went wild in the disappointed and perplexed Stadion, its accents still wail eloquently in the ear of Europe, like the spirit of suffering that haunts the scene of crime and threatens the doom of unjust power. The forcible suppression of law in Hungary by armed despotism has extended Poland to the borders of Turkey ; Murad Pacha bears the traditions of Bem, the countryman of Kosciusko ; and Russia is exasperating Turkey to try her restored vigor in a new war of the Crescent against the Greek Cross, but this time in behalf of national independence and municipal freedom. Such are the elements of future action : it is given to 1850 for the Letter and the Spirit to come to some terms ; but no doubt provisionally—a world of eventful enterprises and pregnant glories being left to the latter half of our century.

From the *Spectator*.

THE SUM OF COLONIAL REFORM.

OVER-ABUNDANCE is the prognostic that begins to alarm watchful economists. The bank is gorged with gold, and the *Morning Chronicle* lifts up a warning voice interpreting that dread sign. It reminds us that those practical financiers, Mr. Jones Loyd and Sir Robert Peel, have described such gluts of money as the sure forerunners of excited speculation, over-trading, and crash. Commercial men are getting familiar with the idea. It takes, they say, about seven years to run the round of rising prosperity, affluence, crash, decline, and rebound. They watch the bubble as it forms and bursts, but do not offer to go beyond critical observation, to correction. The *Chronicle*, however, calls to mind the proper vents for the super-abundance—sound speculation, such as permanent improvements of land, and colonization. In such works for future production, money can be sunk

without mischief, with no result but certain profit. We are therefore coming to learn the full use of colonies, just as the bright idea has occurred to certain patriot politicians that it would be well to get rid of our colonies.

This complex idea seems to perplex some who have got hold of it, as much as the glove left by the fugitive perplexed the Arctic bear. The philosophers are aware that they have hold of something, but they do not know what, and they do not precisely know how to put it on. They don't know which way to argue ; so they argue both ways, or neither, according to temperament. Mr. Godley's letter is another puzzle ; they can't contradict it, they confess that it is true, and yet they can't reconcile it to ministerial orthodoxy. They are in the position of the Mussulman sages whom the sultan lately required to reconcile medical science with the Koran ; they cannot ignore plague nor gainsay sanatory regimen, but yet it is not in the book—is not the truth authoritative. Mr. Godley earnestly calls attention to the double fact, that the colonies are in danger of being lost to us, and that a sound policy might retain them ; which nobody can deny ; but how reconcile the position with official views and conduct ? The attempts made to that end are curious. One writer admits the precarious state of colonial affairs, but gayly declares that matters are always unsettled and must ever remain so in that regard. Another friend of official interests avows that the state of affairs demands revision and reform, but avers that Lord Grey and Mr. Hawes are doing all that is wanted.

These reassurances are equally alarming. Doubly so, since they are perhaps equally true ; Mr. Hawes and Lord Grey may be busy with "reforms" of their stamp, and yet the precarious condition of affairs may be radically unalterable in the official view. But if those statesmen are so busy, it is essential to the welfare, if not to the safety of the empire, to know *what* they are doing. To unravel that formidable mystery, will be one duty of independent members in the approaching session ; for it is now quite evident that colonial affairs must occupy a prominent position in the ensuing debates. All politicians are preparing for such a turn of public discussion ; and it is not an unfavorable omen that a politician who ever inclines to seize upon that form of any question which can be turned to most popular account, has come half-way over from his recent anti-colonial position. Mr. Cobden's Bradford speech is one for colonial reform, but it is not half so strongly imbued with the spirit of colonial abandonment. That semi-conversion is a great fact ; a month may suffice to effect the other half.

Were the interests at stake less momentous, it would be amusing to note the ado which is made, first in coming to conclusions, and then in turning them to any purpose. In the first instance, there is the coyest dread of the most obvious conclusions. A leading journal bestows all its immense skill and power in selecting and establishing for itself a

position like that at the meeting of cross-roads, by which to advance hereafter in any direction, or retreat. And another more strictly ministerial paper, which maintains that we have already come to all desirable or possible conclusions, wishes the world to be content with ending in Lord Grey and Mr. Hawes. Those timid eyes cannot be induced to confront the actual state of things—the estranged mind of the colonies, our vitiated relations, and the necessity for setting about *some* plan of providing for the future. But then, as if in anticipation of the inevitable work, it is hinted that the needful labor to make all right will be impossibly vast and difficult. Now that is not so ; what remains to be done is not so very vast ; neither is it impractically difficult. Recent occurrences in every section of the colonial empire make it obvious that the actual, or rather the late relation between England and her dependencies cannot be maintained ; but the change which is inevitable is half made, ready to the hand of the official statesman, by the colonies themselves. The future relation, whatever it is *called*, if any relation is to exist at all, must be one of federal alliance and reciprocal benefit ; the colonies *wholly* independent of the central administration in their *local* government, but united to the empire by a few broad and simple bonds of mutual interest. Now, towards effecting that sort of independence not much remains to be done. Canada is virtually independent, notwithstanding the large army which this country maintains in that colony for a show of supremacy. The Cape of Good Hope has seized hold of independence in such a manner that the independence must be conceded, or the cape must be conquered from its English colonists ; a conquest which no probable administration would undertake. The whole course of legislation as respects Australia tends towards a similar end ; Mr. Hawes' oft-retracted draft of a constitution will have to be outdone, by himself or others ; and that necessity implies everything. In these respects, with reference to all our colonies proper, we are reverting to the relation which subsisted between England and those settlements that she established on the best *political* footing, the earlier colonies of North America.

With regard to some dependencies, difficulties may exist, because the proposed municipal independence is there complicated with questions of race ; as in Ceylon, with the numerous and not contemptible native races ; in the West Indies, with the black Creoles. But Ceylon is an exceptional case, having been treated neither as a colony *nor* an Indian dependency ; therefore it must still be treated provisionally, either until its administration be assimilated to that of India, or it be effectively colonized by whites ; which it might be. And in the West Indies, it is not at all to be assumed that the blacks cannot be admitted to a share in the working of representative institutions. Care would no doubt be required in devising plans for such institutions ; but while the possession of political power would secure to the blacks a very proper and socially advantageous consideration

from their white aristocracy—a considerateness which might solve every difficulty connected with free trade in labor—it is manifest that a fair use of superior faculties and opportunities would maintain white supremacy ; and natural sympathy would always secure the safety of the white race, by its alliance with other sections of its own family in Europe and America. In a word, the very way to avert the oft-repeated threat that any British West Indian colony municipally independent would become an English San Domingo, is to make it a black England, under the controlling sanction of England, her prestige, experience, and influence. To the question, "Would you then enfranchise the blacks?" we answer, that all history proves how precarious is the condition of any polity which depends upon any "checks" or contrivances to withhold power from particular classes. Let the blacks obtain all the power of which they are rendered capable by their inherent faculties and social development ; but maintain proper government among them by a corresponding elevation of white power. Surely the whites have start enough in the race, and advantage enough, not to need that the blacks should "carry weight."

In any colonies whatsoever, the custom of appointing officers from England must be given up. Possibly the actual enjoyers of patronage conferred should not be rooted out suddenly, or at least without due consideration ; but the system is already doomed—really at an end. On the other hand, released from many liabilities annexed to over-government of colonies and the exercise of patronage, future ministers will not find it difficult to found *new* colonies without the abuses which beset the old. There is for every shadow a bright side.

The reason why the statesmen who are in office, or waiting outside the portal of office, refuse to recognize and act upon these obvious facts, is that they are blinded by routine and certain conventional tenets, about "the integrity of the empire," the duty of "maintaining its territory intact," and the like. They cannot see the colonies or their proceedings, for the accumulated heaps of didactic despatches and blue books around themselves. For similar reasons—the fixed contemplation of received ideas, rather than an examination of realities—they cannot discern the utility of colonies municipally independent ; and as they cannot bring their minds "to give up the colonies," they cannot bring their minds to what seems to them equivalent to giving up. If they would simply leave poring over the records and imaginative compositions of Downing Street, and look at the facts open to the broad light of day, these doubting politicians would soon perceive that colonies might be as useful as ever—more so—although they should be municipally independent. The nation that is not continually growing is stationary and about to decline : but if England continue to grow within the compass of the four seas, she will grow too big for her own space, like the giant in the Castle of Otranto, and will die of glut, like that threatened in the golden congestion of the bank : colonization

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affords scope for growth, field for the action of increasing energies. To multiply English settlements, is to multiply English markets for English produce. But there are considerations higher even than commercialism: it is the duty of us all, nations as well as individuals, to do all the good we can, and not to let good be wasted for want of our exertion: it will be the better for the world, if one of the most civilized of nations be extended, rather than one less civilized. Accidental circumstances have conspired to set a lower tone of intellectual, political, and national morality in the great separated colonies of England; and it would be for the benefit of the world if England were able to extend herself, rather than acquiesce in extension of the United States by absorption of English colonies. It would be better for England to possess allies bound by every tie of blood and undivided interest, rather than rivals prone to contest. Statesmanship worthy of the name deals with realities, and aims at substantial good: true colonial statesmanship, just now, should consist in confronting the facts and striving after attainable good, not in ignoring the facts and striving to retain obsolete privileges.

From the Spectator.

THE COMMON SENSE OF FUNERALS.

THE undertaker's business will not be permitted to rest in peace, unreformed. One who is "Not a Mute" writes to the *Times*, making two suggestions for the curtailment of idle expense—

The rank and station of the dead are not a measure of the worldly means of those he leaves behind. But in cases where a large circle of friends desire to show an outward mark of respect to genius, to public services, or to worth, why is a heavy burthen to be cast upon the living? In such cases carriages are offered with their attendants. Why are the coachman and footman to be decorated in silk scarfs, at an expense, I am told, of two guineas for each carriage? Surely carriages might follow without this mockery of woe, which is worn for the moment, then sold for its value to the undertaker again, perhaps for another occasion of equally idle pageantry; or, why should not such friends send their carriages, if such display is called for at all, with all these outward marks of mourning, at the expense of those who really desire to show a mark of respect thus publicly? Perhaps fewer carriages would attend. On the other hand, many would be anxious to do so, if only custom sanctioned it, with or without idle ostentation. Then the carriage would be a real mark of respect.

Again, I am confident many friends would attend funerals if they were allowed to do so without inconvenience to the living. Why, then, should not this numerous class attend in simple mourning at the grave—meet at the cemetery—join in the last rites—pay a tribute to private or public worth or eminence, without enhancing the undertaker's bill? I feel very sure, were the custom once sanctioned, the funeral would be simple and inexpensive; and a more genuine expression of sorrow would take the place of the empty and heartless ostentation now too common.

But if these suggestions were carried out, their spirit would no doubt be carried much further. None would object to the expense were the outlay a real sacrifice to the dead, either for his welfare or the honor of his memory; but by our usage of delegating the conduct of the funeral entirely to a tradesman, the sacrifice is not to the dead, but only to the undertaker. He undertakes to measure the respect and regret, and he does it virtually in the length of your bill; the "properties" of the dismal drama being only pretexts to justify the bill. The spirit of reform should search into the matter, with the view of eliminating those parts of the ceremony which are merely expensive, and of restoring the rest to a more natural relation with the laws of grief.

In that sense, we find that the need of reform exists far less among the outward parts of the pageant, the visitors and their carriages, than in the more essential parts, the greater as you approach the sacred person of Death.

Were grief a mere pretence, there might be some show of reason in bringing a dismal aspect over the actor in the pageant, by the detestable arrangements of black stuffs about the mourning coach—in itself an ugly and unwieldy vehicle—and the faces of the mourners. A sad-colored costume, and even black, might be used to typify the inward sombreness; but not that midnight sootiness which is so repulsive. Again, why should a tribe of mercenaries walk by the side of the procession? They mean nothing. If the departed was so beloved by friends and adherents, let them walk with him on his last journey; but why those idle traders in funereal woe? *Cui bono?*

Especially, what is the use of that board of black feathers carried before the hearse? Does it solace the soul of the departed, or the grief of the living, or in any way reconcile death to life? No; it simply reconciles the undertaker's bill to his conscience, or rather to the usages of his trade. For the undertaker's object is the perfectly fair one of getting an income out of his trade, and he is quite willing to do suit and service for that estate according to what is expected of him.

One thing that multiplies the attendants is the weight of the coffin, and that is caused by the endeavor to render it impervious. Now that endeavor was suggested by the old barbarous notion that the body could literally be retained in its actual form for future resurrection; a conservative process carried to the most efficient shape of which it is capable in the process of embalming. But we now know that decay *cannot* be arrested; partial success only makes the ignorant attempt the more hideous; and Queen Adelaide has set an example, even in the royal class, of waiving the process. It was only another graceful tribute of that lady to the laws of simplicity and nature; for she it is who bears the repute of abolishing the custom, long disused on the continent, of disguising the change of time by wearing false hair. You cannot resist the laws of nature without the penalty of defeat: *false hair converts the time-worn coun-*

tenance, not into a young one, but into a harsher caricature of age. Embalming converts the divine form of humanity into a mummy. The leaden shell and oaken coffin are but rude substitutes for embalming—contrivances for resisting or delaying the process which restores flesh to earth; but it is in the prolonged transition that the process is shown in its most shocking form. Living flesh and good fertile mould—the mould of a garden or a corn-field, of the grassy meadow or the forest—are both pleasing to our sense; and the process which converts the one into the other is consecrated by all that we know of the beneficent laws under which it is operated. But when it is delayed!—

What we desire in a funeral is that it shall typify our sorrow, and restore the fleshly body of our friend, which he has ceased to need, to the earth from which it was borrowed, in the manner most seemly, the most harmonious with our memory of his living condition and with the welfare of the living. For to make him a loathsome pest-bed for the living, is to desecrate his memory. In that view, our plan should be, to keep aloof as much as possible the train of mercenary strangers; to effect the restoration by the most direct and comely means. The coffin should not be impervious, but pervious; and a ground might be prepared to facilitate the process, and thus consecrated to receive the ashes of the dead by a practical furtherance of those laws which close his mortal career, as they originated and sustained it. In the same sense, the mere transit from the abode of life to the cemetery should not be made a gazing-stock for the public: it is the last depositing that the eye of love will gladly watch, precisely in the same spirit that carries you to the railway station and detains you to gaze towards the parting train long after you have no trace of your friend but the cloud of steam or the glare of the red lamps.

But reduce the ceremony of the restoration to its essentials, and it is a very simple process; absolutely needing little beyond the services of the friends, the sexton, and the priest who sustains the trial of death with the knowledge of life, and calls change to its immortal duty of ministering to the eternal.

From the Spectator.

CAROUSING BY WHOLESALE.

DRINKING makes head in some of the rustic parts of France. An Angevin farmer writes in alarm to the *Corsaire*, complaining that a Parisian practice of "drinking by the hour" has been introduced in the commune village, and that one effect has been a great augmentation of the business of the gendarmerie in the way of quelling wine-shop disturbances. A sergeant of that gallant corps actually refused to dine with the farmer on a recent Sunday because of his largely increased duties in keeping the peace.

This "drinking by the hour" must be placed in the same category with "dining off the joint,"

or the privilege of the "table d'hôte;" only it is much more hazardous to public order. The price at which the toper was to be allowed to consume his wine without measure, must have formed the subject of some nice calculations. Few Dandos are produced in an age, and hence the accuracy with which men's eating may be averaged; but the capabilities of liquid consumption are not so easily measured—at least in this country. The cabaretiers, however, are pushing the business at six sous (3d.) per hour; and as the retail price over the counter, or "in your own jug," is a penny the litre, (one quart,) the quantity which will be allowed without grudging may be put down at three quarts each hour that the toper avails himself of the contract. The Angevin farmer mentions that a gardener of his, "rather thirsty," and endowed with "a day's pay of 40 sous, (20d.) is enabled to drink by the hour for three days." In this there must be a mistake; for the 40 sous are hardly equal to seven hours' drinking; unless, indeed, the drinking day is short and the charge is made to diminish in an immense ratio as the hours advance. Perhaps the scale is so adjusted as to take into account the probability that at a certain stage drinking may be suspended in quarrelling; or, even where this does not take place, sleep may interpose and cut off the power of consumption.

Probably the sole country where such copious supplies of liquor could be furnished at the rate of 3d. an hour is Scotland. Kirk Sessions might add a curious chapter to the report recently published upon this point. They could tell that there is a beverage called "small beer," brewed from malt and hops, which sells, where quantities are taken, at a penny the quart bottle; that it is not in favor when it is "flat," the test of excellence being that it "nips the nose," or "cuts the breath." What if the French practice should be adopted, and the consumers allowed to swill this cut-breath beverage at threepence the hour? It might produce an anti-whiskey revolution, and in time enable a nation to get rid of its headache.

From the Spectator.

NEEDLEWOMEN'S RESCUE—MINISTERIAL HOPES.

"DIGGING holes in sand" was the process to which we said Mr. Sidney Herbert's scheme for carrying off the superabundant needlewomen—superabundant and therefore starving—might be likened; and this objection has been hammered out by writers who would not dislike to balk his scheme. We explained how it failed not only to remove the causes which create that unhappy class of workers, but also adequately to counteract the effect of those causes. As the causes are larger than the remedy, the relief can only be partial and temporary. The causes are, that low state of the industrious classes generally, especially in the rural districts, which makes women cheap; the tendency of trading competition, pushed beyond its productive stimulus in a mutually privative and destructive

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contest, to create ultra-cheap occupations, of which the remuneration borders on starvation; and the special demands of the London market for females, which concentrate upon the capital the over-abundant supplies of the country. A statistical writer in the *Examiner* ably illustrates this position, and shows that to such attractions for females in want of employment will be added the very great one of a free passage to the colonies; and, ever on the watch to block out dangerous rivalries, the faithful ministerialist of the evening press seizes upon the illustration to prognosticate that Mr. Sidney Herbert's plan must end in "failure."

That would be true if Mr. Herbert's scheme pretended to regenerate the women of England, to reconstitute the elements of society in the empire city, or to fulfil any other enterprise as vast and "revolutionary"—according to the cant phrase, which characterizes any social measure that is thoroughly effective by that epithet. But his plan has no aim so wide. To counteract the broad causes of the evil, it would be necessary to improve the state of the industrious classes; to revise the morals of commercialism, and some other morals; or to relieve the pressure of supply upon the demand for women, by a *general* and constant draft upon the people, especially in the agricultural districts, such as would result from systematic colonization on a national scale. Mr. Sidney Herbert is not in office, and he is not called upon to supersede the functions of government in that regard. Meanwhile, the victims pressed forward by the system suffer; and it is not in human nature—though it may be in official or highly cultivated politico-economical nature—to abstain from helping the afflicted. Mr. Herbert steps forward to help the sufferers of the sex which is dear to all men of manly heart, just as an individual British officer might have rushed forward to rescue a Hindoo woman thrown under the car of Juggernaut, although he might not have power to abolish the Juggernaut system. What if a second victim be found? Perhaps she might have been slain too, in any case: at all events the one is saved; more than that, humanity is vindicated and hope is restored to helplessness. For, be it always before us, that privation and pain are not the worst evils that we can suffer: the worst of all is the despair of helplessness abandoned by sympathy. We can all of us endure suffering; none of us abandonment. To the abandoned, Mr. Sidney Herbert has appeared as the impersonation of human aid and sympathy—to woman in her lowest abjection the brotherly help of man. Apart from the mere material consequences, either way, that assertion of a high and immortal sentiment is worth any sacrifice.

In its primary and direct consequences, the transfer of women from over-womaned London to the under-womaned colonies can do nothing but good. We assume, indeed, that it will be properly conducted, and therefore do not think it worth while to pause upon the objection of another critic, not unbiassed by party rivalry, that the female emigration of 1831 to Van Diemen's Land proved

a failure, as the women were abandoned to the worst of lives in the colony. Against that we might set successes within our own knowledge attending female emigration to New South Wales. But, in fact, all these earlier cases of female emigration were ill conducted; and the conduct of emigration has much improved under the supervision of a responsible board.

In its indirect and secondary consequences the measure may not work so perfectly. The translation of these wretched women to a happier clime will be in itself an absolute good; but the emigration *may* be exceeded by the female immigration into London. Secondary consequences, however, generally point to broader causes and suggest larger remedies than the topical palliatives of proximate causes. So it is here; and, in truth, if the working of Mr. Herbert's plan exposes the evil anticipated, it will have done a greater service than its author contemplated. We do not wonder that the official mind is dismayed at the anticipation. What the objection really means is, that the emigration machinery of the country is so weak that it will not bear the strain put upon it if an impulse be given to emigration in any particular quarter. We quite believe that: we believe that the desire to emigrate so pervades the country, and is capable of such constant and ready extension, that a facility offered in any quarter will draw to it immense numbers seeking the help; and we further believe, that, for this reason, the working of Mr. Sidney Herbert's plan will render it imperatively necessary to provide for that additional strain by strengthening the general emigration machinery of the country. Indeed, the fact must be self-evident to all who have access to information on the subject. We said that the project threatened the most distasteful of all things to the official mind—trouble, and the impossibility of evading duty. It does so; and under any other circumstances, enormous pains would be taken to set influences to work in dissuading Mr. Herbert from his plan. He has gone too far, and too openly, for that; but the patrons of official interest cannot refrain from *trying* a little of such dissuasion as consists in disparagements and hints of inconvenience. The ex-minister is scarcely the man to be deterred by those motives; he may not have anticipated all that he was undertaking when he volunteered to rescue the London needlewomen, but we fully expect that he will go through with it, even if it oblige him to see that the national emigration machinery be rendered effective. The *Globe* hints a hope that Mr. Sidney Herbert, impressed with the mischief that may flow from his benevolent intentions, may give up the scheme of his own accord—of course return to Queen Victoria and the other subscribers their money, apologize to the needlewomen for his rash promises, and take a tour to hide his blushes in the ruins of Petra, or disperse them on the unblushing prairies of the West. But the *Globe* dares not say that it hopes Mr. Herbert will be so obliging; it only tries to work upon his fears. No; he is too well backed: the thing is done.

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